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Final Environmental Impact Statement

WESTMORELAND RESOURCES, INC. ABSALOKA MINE

Big Horn County, Montana

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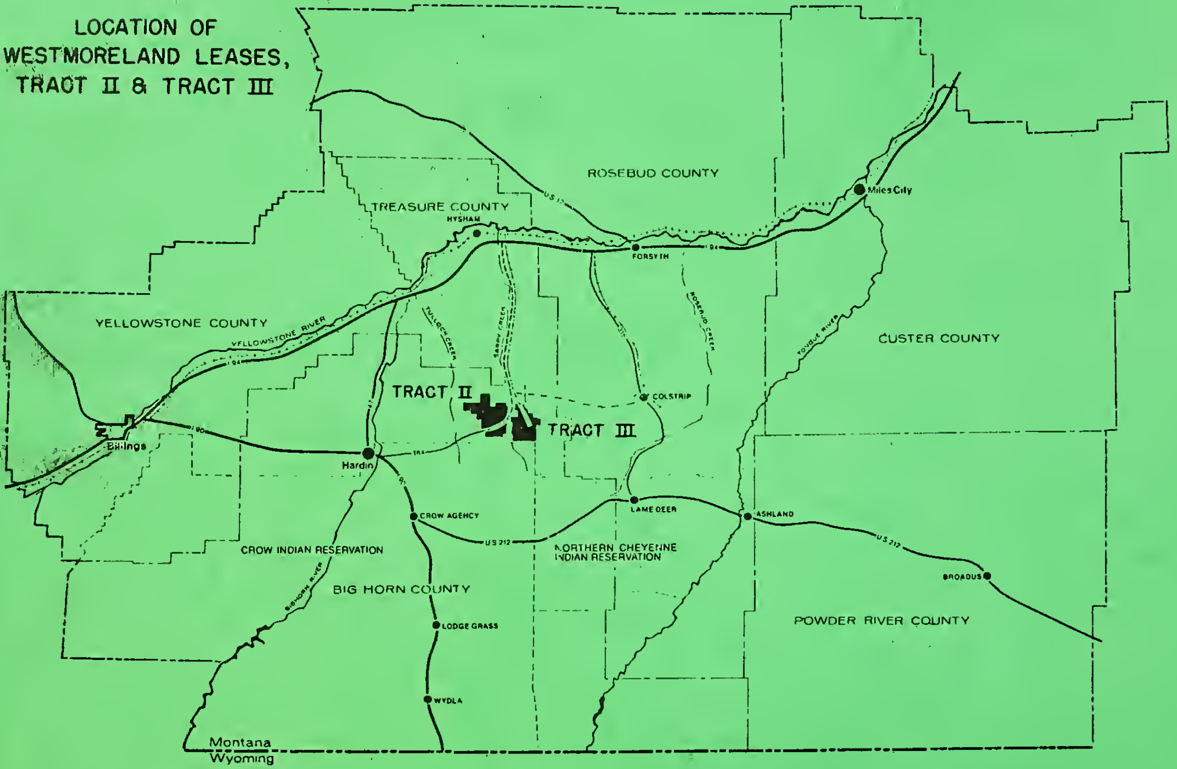

Source: Mountain West Research Inc.

NRIS 65

Final Environmental Impact Statement
on the
Proposed Mining and Reclamation Plan
for Westmoreland Resources, Inc.'s
ABSALOKA MINE
Big Horn County, Montana

Prepared by the Montana Department of State Lands
Pursuant to the Montana Environmental Policy Act
December 1979

L Berry Jr
Leo Berry, Jr., Commissioner
Montana Department of State Lands

MST SEP 1 5 '82

PREFACE

The hydrologic analysis in the draft environmental impact statement (DEIS) required substantial changes to incorporate new information provided by Westmoreland Resources, Inc. The vegetation and wildlife sections were also modified to reflect the new hydrologic analysis. Comments on the DEIS did not require major revisions other than in those sections.

This final environmental impact statement (FEIS) incorporates the unchanged portions of the DEIS (chapters I, II, IV, VIII, and XI) by reference. Chapter III, as revised, and the hydrology section of chapter II are reprinted. A summary of Westmoreland Resources, Inc.'s proposal and its major environmental impacts (incorporating parts of chapters I, V, VI, and VII) is included, along with additions to references.

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SUMMARY

1. Action under consideration: Westmoreland Resources, Inc. has applied for a strip mining permit for its Absaloka mine in Big Horn County, Montana. The Commissioner of State Lands must decide whether to approve the permit, approve the permit with stipulations, or deny the permit.

2. Brief description of the company's proposal: The permit would allow the company to mine 361 acres of its Tract III lease in the Crow ceded area (see inside front cover) through 1984 at a rate of 5 million tons/ year (mty). Westmoreland will also mine 5 mty under an existing permit from a State-owned section immediately south of the existing operations in Tract III; total coal production from the Absaloka mine would reach 10 mty by 1984.

3. Summary of impacts:

a. Short term uses of the environment:

Westmoreland plans to mine 200 million tons of coal from the Absaloka mine between 1980 and 2000 at a rate of 10 mty. This would be about 10 percent of the total projected coal production from the northern Powder River basin for that period. About 24 million tons of the 200-million-ton total would come from the 5 year permit application area; the remainder would come from other company-leased lands. About 23 million tons of unmineable or poor quality coal would be lost.

The coal would produce electricity and considerable tax revenues, royalties, and jobs. From 1980 through 1997, Westmoreland Resources, Inc. would pay a total of about $288 million in State severance taxes (at the most recent price), lesser amounts of other taxes, and about $99 million in royalties to the Crow Tribe of Indians.

The proposed 5 year mine plan and the already approved mining in State section 36 would create about 250 jobs in Big Horn County by 1985, including direct employment at the mine, ancillary employment due to the mining jobs, and ancillary employment due to the royalty payments to the Crow Tribe. By 1997, direct employment at the mine would not have increased further, but about 500 more ancillary jobs would be created, mostly due to the increasing royalty payments to the Crow Tribe.

b. Effects on long term productivity under the 5 year mine plan:

The postmining topography as currently proposed would be geomorphically unstable; erosion and sedimentation would inhibit revegetation on as much as three-fourths of the 361-acre reclaimed area. If Westmoreland commits itself to a complex slope morphology, or is required to by the Department, geomorphic impacts would not be significant. Some increase in erosion would still occur due to alteration of soil structure, but this would not significantly inhibit revegetation and subsequent land use for livestock grazing.

During and immediately after mining, livestock grazing on the 5 year permit area would be reduced by a maximum of about 110 animal-unit-months (AUMs)/year, assuming total exclusion of livestock from mining and early reclamation areas. Following reclamation, the disruption of the hydrologic system and disturbance of soils and vegetation would slightly reduce livestock and wildlife carrying capacity below potential for the long term. The reduction would amount to about 20 AUMs/year, or about 900 pounds of beef production/year, which would not appreciably reduce total livestock production from the Sarpy Creek drainage basin.

c. Effects on long term productivity under the 20 year mine plan:

Land use on the 2,900 acres disturbed under the remainder of the 20 year mine plan would be significantly curtailed during and after mining. The reclaimed surface could not support as many livestock or wildlife as at present under optimum management. This impact would be due mostly to the destruction of part of a ground-water recharge area that supports numerous springs in the major coulee system north and east of the mine area, as well as the springs themselves. This would greatly reduce vegetation and available water for livestock and wildlife in those coulees. The reduction in spring flow in the coulee system would likely cause a successional trend toward plant species which tolerate drier conditions. The carrying capacity of the reclaimed land for livestock and wildlife would be lowered owing to the cool-season forage which would be supported on the reclaimed area and the increased distance to water.

Potential vegetative productivity would be slightly lowered on the entire reclamation surface, following several years of initially high productivity. The actual stocking rate would be lowered by about 0.05 AUMs/acre (a total of about 5,800 pounds of beef/year) under management similar to the premining practices. This loss would not significantly lower total livestock production from the Sarpy Creek basin.

Trees and shrubs such as ponderosa pine and skunkbush, which are important for wildlife, may not be reclaimed, although the company has had some initial success (2 years) in establishing ponderosa pine on reclaimed areas. Riparian plant communities would also likely be lost. These impacts would, in turn, reduce the carrying capacity of the area for many species of wildlife, including amphibians, turkeys, mule deer, white-tailed deer, and several songbirds.

d. Other unavoidable impacts:

Other impacts would apply to both the 5 and 20 year mine plans. In general these impacts would not be significant: no environmental laws or standards are likely to be violated, and intended uses of resources in the area would not be appreciably curtailed.

Although pollutant emissions from the mine would approximately double, existing air quality standards would not be violated, and impacts on human health and vegetation would be limited. Long term exposure to particulate and gaseous pollutants would increase the risk of health problems among workers at the mine, and would probably reduce vegetative productivity within about 1 mile of the active mine area.

Reclaimed soils would require specialized management for many decades to prevent undue erosion, compaction, and further loss of vegetative productivity. Management practices that would be acceptable on nearby unmined lands would likely cause problems on the reclaimed minesites.

Social and economic impacts would not be severe. Annual growth rates would not be so high as to disrupt the local society. Big Horn County would grow from about 10,600 in 1980 to about 15,000 by the year 2000. Hardin would grow from about 3,200 in 1980 to about 7,600 by 2000. A little over one-fourth of the increase in Hardin and in Big Horn County would be due to the mine.

As the town of Hardin became more urban, the pace of life and the accompanying noise and pollution would increase. Ranchers near the mine would continue to see an erosion of their rural, agricultural way of life, due in part to the influx of newcomers, increased traffic, noise, and dust, and the uncertainty over possible additional mining. Conflicts between the white and Crow Indian cultures would likely increase as newcomers, mostly white, moved into the area. Increased royalty payments to the Crow, and the higher incomes of the Crow mine workers, could potentially change the Crow family structure, although this is speculative.

Based on prior experience at the mine, about 130 man-days would be lost from accidents over the life of the mine. There have been no deaths to date at the mine, but a few could possibly occur.

The 35-50 acres of land used for new residential development in and around Hardin would be lost to other uses, mostly agricultural. Population increases would slightly lower the quality of recreational experiences in the county.

No significant problems for local school districts or Big Horn County are anticipated, because the mine is part of the school districts' and the county's tax base. The mine would probably have sufficient taxable value to fund the new primary school that would be needed. Due to the county's increased dependence on mining, however, interest rates on bond issues would probably increase. The Crow Tribe could develop a similar dependence on royalties from the mine. Hardin's tax base would not increase as fast as the need for new services but this would only partly be due to the mine. Mental health, drug abuse, and public assistance programs would lag behind demand.

The opportunity for in-place study of archeological sites would be lost, although none of major importance are known to exist in the area to be mined. Six historic homesteads and two archeologic sites would be destroyed under the 20 year plan; one historic site would be destroyed under the 5 year plan. Despite mitigating measures, additional unknown archeologic sites could be destroyed and thus lost to scientific study.

The mine would be an eyesore to those living nearby, although many people visit the mine and presumably accept the way it looks. After reclamation, the minesite would not be a scar on the landscape, although it would be noticeably different from surrounding undisturbed land.

Water consumption at the mine would amount to 280 acre-feet/year from the Madison aquifer. The increased population of Hardin attributable to the mine would require another 130 acre-feet/year. Neither direct nor indirect uses would exceed existing water rights and supply capacities, nor would they interfere with other uses of water in the Yellowstone Basin.

The mine would use fuel and power at about the same rate as other strip mines in the region--an estimated 1.7 million gallons of diesel fuel, 197,000 gallons of gasoline, and 43 million kilowatt hours of electricity annually at the full coal production level of 10 mty. Unit trains would consume about 26 million gallons of diesel fuel each year to transport the coal to Midwest utilities. The energy directly used to mine and ship the coal would be the equivalent of about 7 percent of the energy contained in the electricity generated from the coal.

4. Alternatives considered:

- Administrative alternatives available to the Department of State Lands.
- Technological alternatives available to the Department of State Lands.
- Alternative levels of coal production that would result from denial of all further permits for the Absaloka mine (low production level) and from increased production to meet the Crow Tribe's lease terms (high production level).

5. Comments on the draft environmental impact statement (DEIS) were requested from various government agencies and from the public. Comments received, along with the responses of the Department and Westmoreland Resources, Inc., are included in this volume.

6. The DEIS was filed and made available to the public on July 13, 1979.

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[1] Mr. Dobson also submitted copies of his previous comments on related environmental impact statements and 16 photographs of sandstone formations in the Tract III area. This material is available for public review at the Department of State Lands offices in Helena.

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CHAPTER II

DESCRIPTION OF THE EXISTING ENVIRONMENT

With the exception of Hydrology, chapter II remains unchanged from the draft EIS and is therefore incorporated by reference. The ensuing discussion incorporates new hydrologic data supplied by Westmoreland Resources, Inc. and new analyses based on those data. Changes in text, except for minor editorial revisions, are underlined. Page numbers roughly correspond to the page numbers in the DEIS.

B. HYDROLOGY

1. Surface Water

Westmoreland Resources Tract III is drained by tributaries of Sarpy Creek, a tributary of the Yellowstone River. Tract III drains toward East Fork, Middle Fork, and mainstem Sarpy Creek. Current mining operations are disturbing the watershed of the latter two streams; however, because Westmoreland Resources, Inc. has constructed minor diversions and sedimentation impoundments to comply with State and Federal regulations, mining operations since 1974 in the headwaters of Middle Fork Sarpy Creek have had no discernible impact on the surface water resource of the Middle Fork basin. The proposed 5 and 20 year mine plan areas both cross into the headwaters of coulees tributary to East Fork Sarpy Creek. There are no perennial streams located within Tract III; surface drainage is by overland flow, by interrupted ephemeral reaches within tributary coulees, and by short segments of surface flow below several perennial springs.

The drainage area of East Fork Sarpy Creek above its confluence with Sarpy Creek is about 81 square miles (mi^2). That portion of the 5 year mine plan area contained within the East Fork watershed is approximately 360 acres, or .7 percent of the East Fork basin. The 20 year mine plan area covers approximately 2 mi^2, (2.5 percent) of the East Fork Sarpy Creek basin. The 20 year plan is entirely within the Sarpy Creek drainage basin, and covers approximately 7.4 mi^2 (1.6 percent) of that basin. Records of the U.S. Geological Survey (Water Year Reports, 1975-78) indicate that annual runoff from the Sarpy Creek drainage basin averages about 11 acre feet/mi^2. However, based upon the established principle that runoff per unit area in semiarid regions increases with decreasing drainage area, mean annual runoff for small watersheds tributary to Sarpy Creek probably more closely approximates 19 acre feet/mi^2 (Hadley and Schumm, 1961) to 27 acre feet/mi^2 (FES 77-17).

The most prominent and important surface water features within the 5 and 20 year mine plan areas are the numerous springs located within several coulees tributary to East Fork Sarpy Creek (figure II-1 and table II-2). Only one spring, No. 276, is within the 5 year mine plan area; at least 10 additional springs are located within the 20 year mine plan area. These springs are the surface expression of a complex ground water system and issue primarily from the Rosebud-McKay overburden and clinker. (See Ground Water.) They are important because, along with the associated high ground water table, they support a dense growth of vegetation within the coulee bottoms, which in turn provides significant food and cover for area life systems. (See Land Use, Vegetation and Wildlife.) The springs themselves are likewise heavily used by livestock and wildlife.

The springs at the heads of the coulees (such as Nos. 232, 266, 274, 275, and 276) have small flows of less than 1 gallon/minute (gpm), whereas the two largest springs in the coulee system (263 and 265) discharge from 7 to 18 gpm. Data are insufficient to indicate any definite trends in discharge rates over time, although the smallest springs probably cease flowing during fall and winter while the flow of the largest springs decreases. Field observations in November 1979 support this contention.

The springs occur as isolated discharges or seeps along coulee bottoms. Many have been improved by ranchers so that water may be more readily available to livestock. The springs flow for varying short distances down-coulee before the water infiltrates into the coulee bottoms. There is no evidence of continuous, active surface water channels throughout the length of the major coulee system draining northeastward from the 5 year mine plan area. This indicates that channeled surface water runoff generally contributes relatively little to the East Fork Sarpy Creek drainage in this vicinity.

A review of 176 townships covering the Fort Union coal region of southeastern Montana indicates that the Tract III lease area of Westmoreland Resources probably does not contain a greater density of springs than other townships within the region, nor is the water quality of these springs significantly better than that of other springs within the same region (Westech, 1977). Water quality analyses of samples taken from spring flows north of the proposed mining area were submitted by Westmoreland in summer 1979 and confirm that the quality of water from these springs is average for Tract III and southeastern Montana.

Locales of high spring density within the region tend to be located adjacent to uplands, such as the Wolf and Little Wolf Mountains and in the Ashland District of Custer National Forest. This suggests that the scale of comparison is the single most important factor in any statement concerning the density of springs in Tract III. The density of springs per unit area in Tract III is possibly significantly greater than in eastern Montana as a whole; however, when compared to areas of similar topographic relief, geology, and climate, the density of springs within Tract III is probably not unusual.

The perennial surface flow of some of the springs, as well as the associated ground water flow within the coulees, ultimately contributes to the ground water component of flow within the East Fork Sarpy Creek valley. Field observations and data provided by Westmoreland Resources (figure II-2) indicate that adjacent portions of the Sarpy Creek system very probably meet preliminary criteria for delineating alluvial valley floors under Montana and Federal strip mine laws. Final determination regarding alluvial valley floors designation remains to be made by the

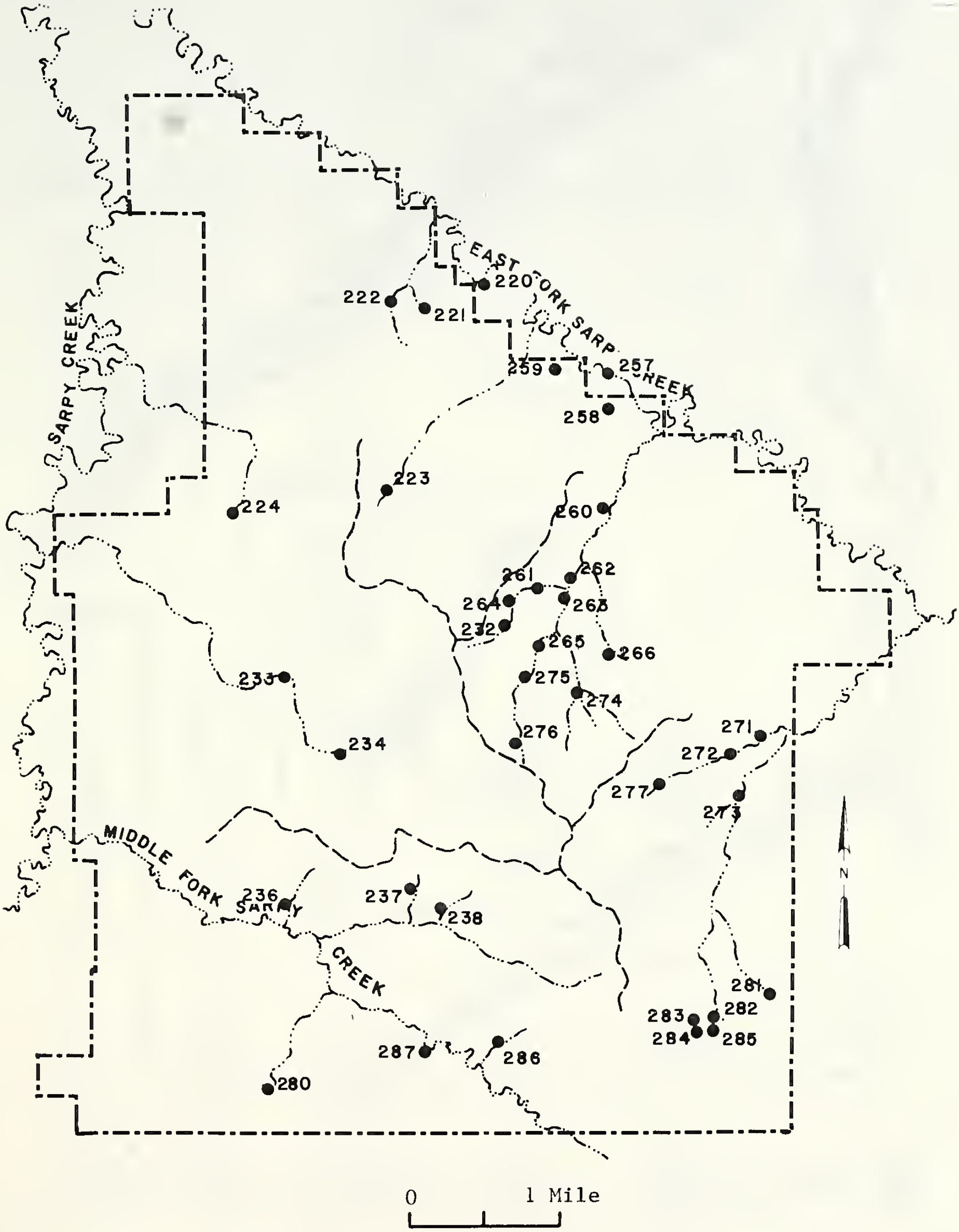

FIGURE II-1.--Map of springs within Tract III. Dashed lines within Tract III show selected drainage divides.

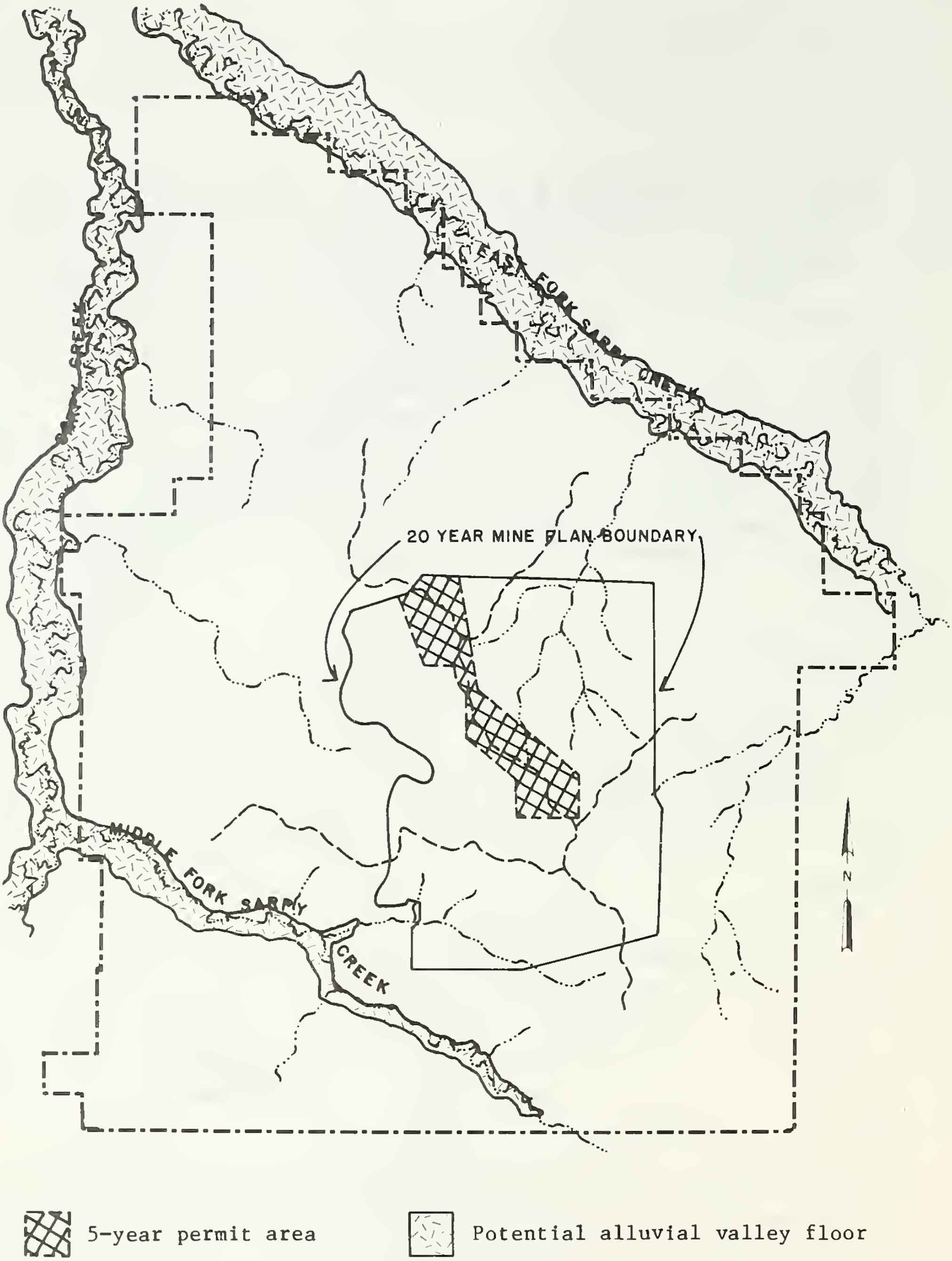

FIGURE II-2.--Potential alluvial valley floors within and adjacent to Tract III.

TABLE II-2.--Spring data for selected springs in Tract III

[Source: U.S. Department of the Interior (1977); Westmoreland Resources (1979)]

Spring number[a]	Water source[b]	Elevation[c] (feet)	Measured* or Estimated flow (gpm)	Specific conductance (umhos/cm)[d]	Use[e]
220-----	Tfu	3,280			S
221-----	rmcl	3,430	1		S
222-----	rc	3,365	1		S
223-----	rmcl	3,430		1450L	
224-----	rmcl	3,420			
232-----	Ttrl	3,470	0-<.8*	3630L	
233-----	rc	3,425		1400L	
234-----	rmcl	3,467		1010L	
236-----	rc	3,435			
237-----	rmc	3,497		743L	S
238-----	Q	3,477			S
257-----	rc	3,300			S
258-----	rc	3,300			
259-----	rc	3,300			
260-----	Q	3,360	1		S
261-----	rmcl	3,440	.3-.9*	2330L	S
262-----	Q	3,392			S
263-----	Q	3,405	14-18*	1980L	
264-----	Ttrl	3,455	1.5-5.0*	2550L	
265-----	rmcl	3,445	7-14*	2130L	S
266-----	Ttrl	3,468		1190L	
271-----	Ttrl	3,460			
272-----	Ttrl	3,470		1340L	S
273-----	Ttrl	3,465		2060L	S
274-----	Ttrl	3,460	0-2*	1510L	S
275-----	rmcl	3,465		1850L	S
276-----	Ttrl	3,560	<.2*	1000L	S
277-----	Ttrl	3,520		742L	S
278-----	Ttrl	3,510			
279-----	Ttrl	3,519	.1		S
280-----	rmcl	3,560		753L	
281-----	Ttrl	3,650		1620L	
282-----	Ttrl	3,575		2400L	S
283-----	Ttrl	3,592		1040L	

TABLE II-2.--Spring data for selected springs in Tract III--Continued

Spring number[a]	Water source[b]	Elevation[c] (feet)	Estimated flow (gpm)	Specific conductance (umhos/cm)[d]	Use[e]
284-----	Ttrl	3,625		1620L	
285-----	Ttrl	3,615		1530L	
286-----	rmc	3,475			
287-----	rmc	3,480			

[a] Spring number indexed to locations and shown on figure II-1. Data are from Van Voast and Hedges, 1974.

[b] Source: Q - Quaternary alluvium or slope wash; Ttrl - Tongue River member above Rosebud-McKay Coal; rmcl - Rosebud-McKay clinker; rmc - Rosebud McKay Coal; rcl - Robinson clinker; rc - Robinson Coal; Tfu - undifferentiated Fort Union formation.

[c] Estimated from U.S. Geological Survey 7.5 minute topographic maps.

[d] Values shown are field measurements except as noted L, which are laboratory measurements.

[e] S - stock, H - domestic, U - unused.

Department. No areas tentatively identified as potential alluvial valley floors are included within the 5 year or 20 year mine plan areas. Should adjacent portions of the Sarpy Creek system be designated as alluvial valley floors by the Department, special attention would have to be given to any potential mining impacts on the hydrologic function of those streams.

2. Ground Water

Within the proposed mine area, there are several important ground water bearing zones, which are, in descending order: alluvium and colluvium within the coulees, Rosebud-McKay overburden, Rosebud-McKay clinker, Rosebud-McKay coal, Robinson coal, and sub-Robinson aquifers. Other aquifers occur at greater depths, including the Madison limestone, from which Westmoreland Resources obtains most of its industrial purpose water. These water bearing zones and aquifers have been discussed in detail in FES 76-64 (U.S. Department of the Interior, 1976); FES 77-17 (U.S. Department of the Interior, 1977); and Montana Department of State Lands, 1977. More detailed analyses have recently been completed (Enviroshpere, 1979; Botz, 1979; Stiller, 1979). Ground water bearing zones and aquifers stratigraphically below the Robinson coal have, to date, been unaffected by mining and are not discussed further.

The most important ground water bearing units in the immediate mine vicinity are the alluvium and colluvium underlying the coulees draining the mine area (figure II-1), the Rosebud-McKay overburden, and the Rosebud-McKay clinker. These units support numerous springs within the coulees draining the mine area and transmit both ground and surface water toward East Fork Sarpy Creek. The coulees receive recharge by at least three primary means. Point source recharge occurs from springs issuing from both the Rosebud-McKay overburden and from adjacent clinker. Less direct but possibly equally as important recharge to the coulees occurs by subsurface flow from both the overburden and the clinker. The least important means of recharge to the coulees appears to be from direct precipitation and snowmelt. The total ground and surface water flow within the coulees results in a water table very close to or at the ground surface and supports a wide variety of dense vegetation on the coulee bottoms.

Another important water bearing unit within the mine area is the Rosebud-McKay overburden. Data submitted by Westmoreland Resources, Inc. indicates that all recharge to the overburden within the vicinity of proposed mining is derived from local precipitation. Ground water movement within the overburden is generally away from the ground water divide which closely approximates the surface water divide between East Fork and Middle Forks of Sarpy Creek. (See figure II-3.) Discharge from the overburden both east and west of the ground water divide is laterally to adjacent Rosebud-McKay clinker and to springs occurring within coulees draining the divide and to a much lesser extent, downward to the underlying Rosebud-McKay coal. The overburden is the sole ground water source for some of the smallest springs found in the heads of coulees tributary to East Fork Sarpy Creek and supplies some of the ground water moving down the coulees. (See figure II-1.)

Another ground water bearing unit of importance is the Rosebud-McKay clinker. Although not within the boundaries of the 5 year mine plan area, it is within the boundary of the 20 year plan area east of the divide and contributes to much of the water flowing within the coulees. It receives recharge at high rates from direct precipitation and snowmelt, and probably in lesser amounts from adjacent overburden and unburned Rosebud-McKay coal. The clinker discharges through springs located within the coulees and by direct subsurface flow to the coulees. At the upper end of the coulees the base of the the clinker underlies the surface of the alluvium and colluvium within the coulees; down-coulee the clinker base is exposed along the sides of the coulees and is demarcated by more vigorous vegetation. This occurs because the gradient of the coulee bottoms is steeper than that of the base of the clinker. Because clinker is highly transmissive and allows ground water flow at high rates, water storage in large amounts is not typical. This is particularly the case with small, free-draining clinker areas which have sharp contacts with underlying, less permeable bedrock units. However, considerable efforts to further delineate the ground water system since preparation of the DEIS have discovered the presence of a different hydrogeologic situation than was initially believed. Consultants to Westmoreland (Envirosphere,

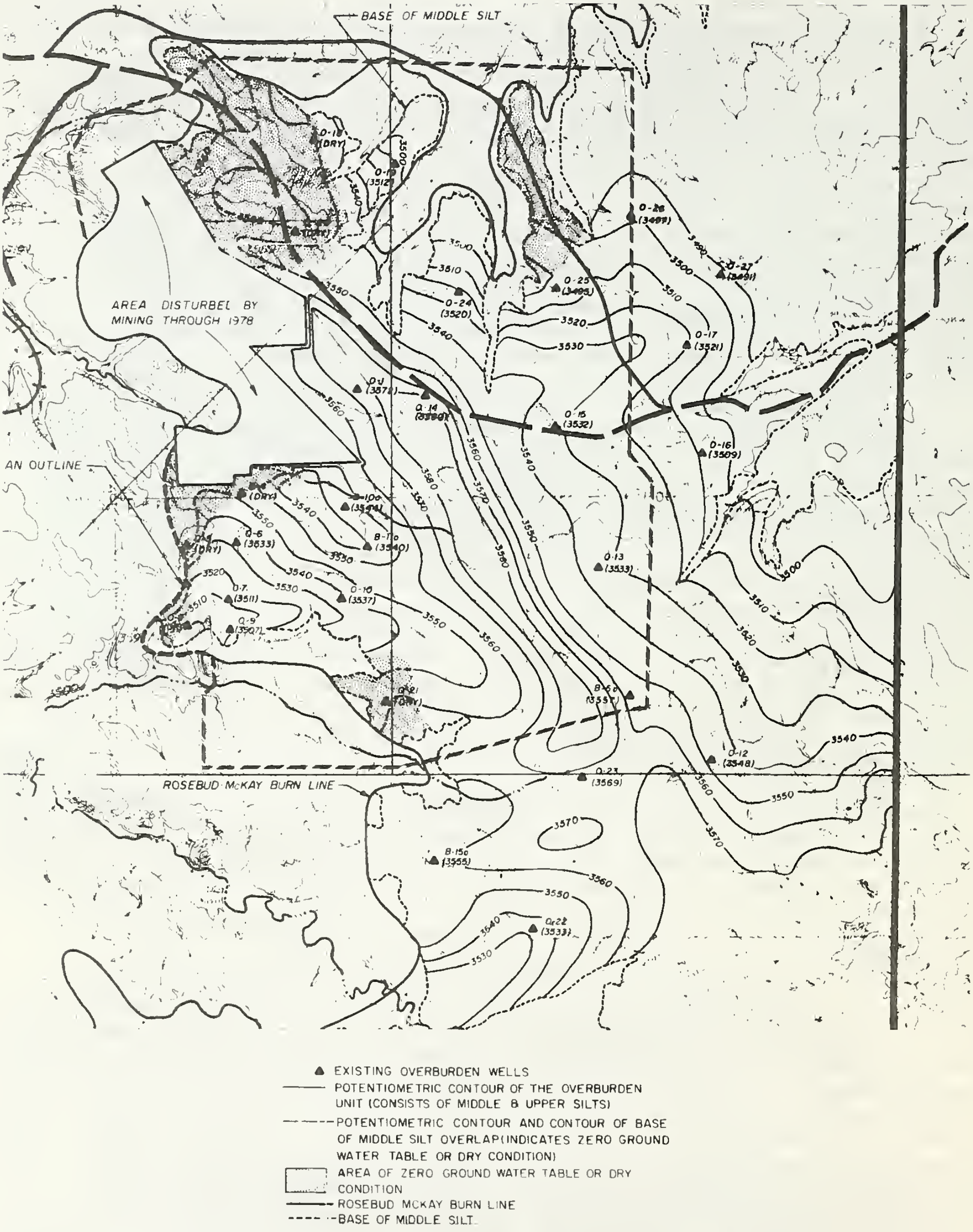

FIGURE II-3.--Map of preliminary potentiometric surface of overburden unit in Tract III.

1979) determined that the two largest springs in the main coulee system (Nos. 263 and 265--see figure II-1) probably receive a significant portion of their recharge from a small clinker area adjacent to the west bank of the coulee. This conclusion was based primarily on drilling in this small clinker area by Westmoreland in late September and early October, 1979, which revealed that the burn is not complete, and that much of the Rosebud-McKay coal seam is present beneath the clinker. An average of at least 6 feet of unburned, weathered coal and ash probably is able to store and release enough ground water to sustain significant portions of the flow of springs 263 and 265 through most years (Stiller, 1979). The proportions of discharging ground water at those two springs which originate from the overburden or entirely from the small clinker area are unknown. The small clinker area is not within the boundaries of the proposed mining area.

The water-bearing coal seams within the mine area--the Rosebud-McKay and Robinson seams--allow comparatively little ground water movement through the mine area, especially when compared to the overburden or the clinker. Collectively the Rosebud-McKay and Robinson seams are of little importance to total ground water movement within the area.

Ground water within the proposed mining area is potable and suitable for most purposes. Numerous ground water quality data for the area have been reported in FES 76-64 (U.S. Department of the Interior, 1976); FES 77-17 (U.S. Department of the Interior, 1977); and Montana Department of State Lands, 1977. The location of the mine area on a drainage divide and the sufficiency of good quality surface water supplies have resulted in relatively few wells in the immediate mine area. (See figure II-4.) Data for wells shown in figure II-4 are provided in table II-3.

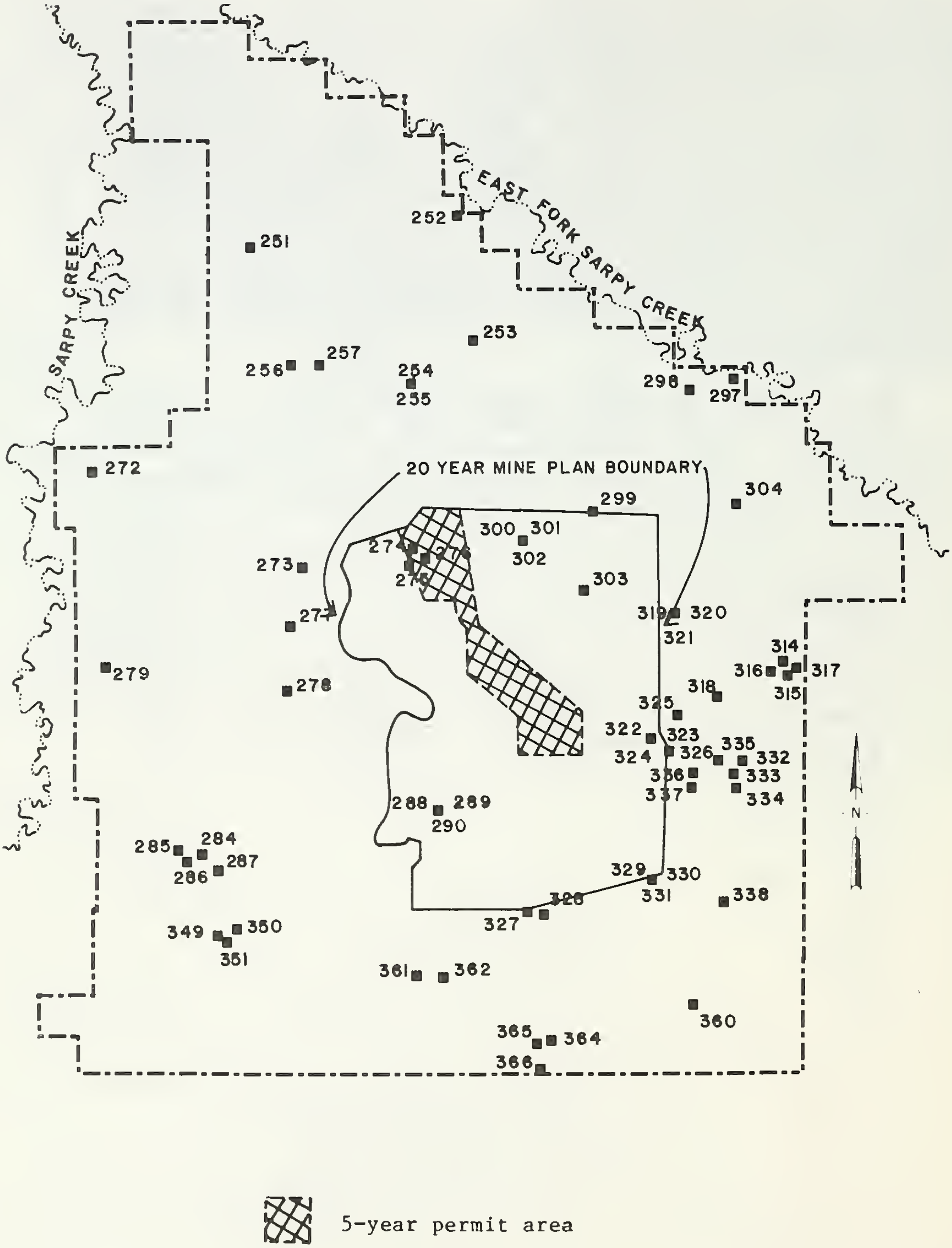

FIGURE II-4.--Map of wells within Tract III.

TABLE II-3.--Well data for selected wells in Tract III

[Source: U.S. Department of the Interior, 1977]

Well number[a]	Well depth (feet)	Depth to water[b] (feet)	Elevation[c]	Date examined	Conductivity[d] (umhos/cm)	Water use[e]	Water source[f]
251----	164		3,351			S	Tfu
252----			3,292			H	Tfu
253----		36.5	3,355			S	
254----	72	24.4	3,408	11-73		M	rc
255----	125	87.4	3,408	11-73		M	Ttr3
256----	130	60	3,395	7-72	2000L	S	Tfu
257----	50		3,451			S	rmc1
272----			3,300	7-72	2310	S	Tfu
273----	80	41	3,450	7-72	1690L	S	rc
274----	15		3,540			S	rmc
275----	8	6	3,549	7-72	910	U	Ttr1
276----	11	6.8	3,550	10-73		U	Ttr1
277----	123	39.5	3,419	7-72	941L	U	Tfu
278----	7977	+175	3,545	10-73	1926L	U	MC
279----	30	8	3,360	8-72	2430L	U	Tfu
284----		21.2	3,380	9-73	5130L		Tfu
285----	80	28.3	3,220	9-73		U	Tfu
286----	60	19.2	3,210	9-73		U	Tfu
287----			3,390	8-72	1390	S	Q
288----	110	46.8	3,545	11-73		M	rmc
289----	196	108.7	3,545	11-73		M	rc
290----	288	160.4	3,545	11-73		M	Ttr3
297----	113	63.5	3,396	8-73	712L	S	Tfu
298----	190	78.5	3,408	8-73		S	Tfu
299----	160	24.5	3,463			S	rmc
300----	45	10.1	3,450	11-73		M	rmc
301----	125	50.6	3,450	11-73		M	rc
302----	232	124.7	3,450	11-73		M	Ttr3
303----	115	36.7	3,450	7-72	1440	U	rc
304----			3,475			S	
314----			3,473	7-72	925L	H	rmc
315----	100	28	3,482	7-72	816L	H	rmc
316----	20	0	3,440	7-72	1260		Ttr1
317----	20		3,440	7-72	1780	S	Ttr1
318----	45		3,510	8-72	834L		rmc
319----	142	114.5	3,565	11-73		M	rmc
320----	215	162.3	3,565	11-73		M	rc

TABLE II-3.--Well data for selected wells in Tract III--Continued

Well number[a]	Well depth (feet)	Depth to water[b] (feet)	Elevation[c]	Date examined	Conductivity[d] (umhos/cm)	Water use[e]	Water source[f]
321----	290	182.9	3,565	11-73		M	Ttr3
322----	61	32.6	3,550	7-72		M	Ttr1
323----	111	46.3	3,550	7-72	905	M	rmc
324----	212	110.8	3,550	11-73		M	rc
325----			3,508	7-72	1820		rmc
326----	50	23.2	3,528	7-72	921	U	rmc
327----	165	71.0	3,534	1-73	1680L	H	rc
328----			3,529	8-72	1575	H	
329----	63	29.6	3,585	11-73		M	Ttr1
330----	135	56	3,585	11-73		M	rmc
331----	267	110.6	3,585	11-73		M	rc
332----			3,500			S	
333----	15		3,490			S	Q
334----	15		3,490			S	Q
335----	15	6	3,490	8-72	719	S	Q
336----			3,530	8-72	1032	S	
337----	225		3,530	8-72	2440	S	Tfu
338----	164	75.4	3,620	8-72	958L	S	Ttr1
349----	174	55.6	3,494	9-73	2380L	U	Tfu
350----	180		3,501	9-73	3287L	S	Tfu
351----	300	100	3,509	9-73		H	Tfu
360----	180	80	3,652	6-73	578L	S	Ttr1
361----	83	57	3,466			U	Tfu
362----	44	14.3	3,480			U	rc
365----	80		3,505	7-72	1230L	H	rmc
366----	84	5.9	3,508	7-72	1780L	S	rmc

[a] Well number indexed to locations and shown on figure II-4. Data are generally from Van Voast and Hedges, 1974.

[b] Whole numbers only--reported; whole numbers and tenths--measured.

[c] Estimated from U.S. Geological Survey 7.5 minute topographic maps. Reference in feet relative to mean sea level.

[d] Specific conductance measured in field unless otherwise noted (L indicates laboratory measurement) at 25° C.

[e] C - commercial or industrial; H - domestic; S - stock; U - unused; M - observation monitoring well.

[f] Source: Q - Quaternary alluvium or slope wash; Ttr1 - Tongue River member above Rosebud-McKay Coal; Ttr2 - Tongue River member between Rosebud-McKay Coal and Robinson Coal; Ttr3 - Tongue River member to about 100' below Robinson Coal; rmcl - Rosebud-McKay clinker; rmc - Rosebud McKay; rcl - Robinson clinker; rc - Robinson Coal; Tfu undifferentiated Fort Union formation; HC - Hell Creek formation; MC - Mission canyon member of the Madison formation.

CHAPTER III

IMPACTS OF WESTMORELAND'S PROPOSAL

This chapter describes the environmental impacts of the 5 year mining and reclamation plan ("mine plan") proposed by Westmoreland Resources, Inc. A 20 year mine plan is also evaluated in order to assess long-term impacts. The analysis considers mitigating measures proposed by Westmoreland as part of the 5 year permit application. (See chapter I.) Additional mitigating measures which could be required to meet existing laws and regulations are described in chapter VIII.

Each section of this chapter begins with a summary of anticipated environmental impacts, as measured by the degree to which the impacts would interfere with the anticipated uses of each resource. Impacts which would severely interfere with the uses of a particular resource are termed "significant".

The summary of each section is followed by a documentation and explanation of its conclusions. The summary and documentation are separated by a double underscore (__________). Text changes made in response to comments or new data are underlined (__________).

A. GEOLOGY

1. Topography and Geomorphology

Geomorphic impacts under the 5 year mine plan would not be significant, assuming Westmoreland reclaims slopes to a complex morphology as requested by the Department. The reclaimed surface as currently proposed has overly long, straight slopes which would erode excessively in their upper reaches and deposit sediment on lower portions of the reclaimed surface. This would inhibit revegetation and subsequent postmining land use on as much as three-fourths of the mined area. Some erosion and sedimentation could not be avoided, however.

The company has submitted a revised postmining contour map (July 12, 1979) on which the slopes have not been significantly changed from the previously designed straight and convex configuration. However, in an inserted legend (Detail 1) they indicate that all slopes would be constructed as convex-concave slopes. The Department has sent a letter to the company requesting a statement on the intent of the company regarding the postmining configuration of reclaimed slopes. If this is accepted as a commitment and is accomplished as stated, the following discussion on slopes morphology would not apply.

Avoidable accelerated erosion and sedimentation would be due to the creation of geomorphically unstable slopes and drainages; alterations of soil and spoil hydrologic properties affecting infiltration and percolation rates; and excessive soil degradation through storage. Unstable slopes and drainages, because of their low gradients, would erode slowly and continuously for perhaps decades until a new equilibrium is reached.

The avoidable problems could largely be alleviated through redesign of the reclamation plan.

Westmoreland currently proposes long, straight slopes bounded on the lower end by convex drops to the drainage bottoms. Such a slope configuration would promote surface erosion (Hadley and Toy, 1977; Young and Mutchler, 1969). Erosion could be minimized by redesigning the proposed postmining land surface. (See Technical Alternatives, chapter VIII.) Several drainages would converge on reduced surface gradients, thereby promoting sedimentation. Rapid sedimentation would inhibit revegetation in affected areas. (See Soils and Hydrology.)

Current erosion and sedimentation rates on reclaimed surfaces at the Absaloka mine reflect the importance of proper geomorphic design of the postmining surface. There are several reclaimed areas with complex (convex-concave) slopes which exhibit little or no severe erosion. There are also reclaimed areas with long, straight slopes exhibiting comparatively severe erosion. In some instances, past management practices have aggravated the situation, resulting in notices of noncompliance (Brace Hayden, Department of State Lands, oral commun., 1979). Inasmuch as the current reclamation plan proposes long, straight slopes, frequently with convex toeslopes, it is reasonable to assume that significant (although avoidable) erosion problems would occur. Other factors influencing reclamation surfaces are discussed in the sections on soils and surface hydrology in this chapter.

Avoidable accelerated erosion and sedimentation would also occur as a result of roads and associated drainage ditches proposed to be left through the reclaimed drainage bottoms. They would serve as substantial sediment sources and efficient sediment and runoff transport channels from the reclaimed area. The roads and ditches would most likely be required if the 20 year mine plan is eventually approved, however, making this component of the total erosion and sedimentation unavoidable.

Under the 20 year mine plan, geomorphic impacts would probably be significantly more severe and complex. The loss of many springs and destruction of the current ground water system (see Hydrology), in conjunction with decreased vegetation in the coulees and increased runoff from the postmining surface, would likely establish an ephemeral surface water drainage network which does not currently exist. The creation of active ephemeral channels from the reclaimed surface to East Fork Sarpy Creek would result in increased erosion in undisturbed coulee bottoms, as well as increased sediment loads to East Fork Sarpy Creek. These impacts would require possibly several decades to a century to fully develop.

Unavoidable erosion and sedimentation on the reclaimed surface would be due to the disturbance of soils, grading and compaction of the postmining surface, and increased water runoff. These problems are typical of any surface mine in a semiarid environment, and would last until an equilibrium is reestablished.

2. Mineral Resources

Under the 5 year mine plan (1980 through 1984), 39.5 million tons of coal would be mined from approximately 345 acres within Tract III. Under the 20 year mine plan (1978 through 1997), 180 million tons of coal would be mined from about 1,980 acres within Tract III and the State-owned section 36. About 23 million tons of coal would not be recovered, owing to the limits of present technology (U.S. Department of the Interior, 1977).

The coal mined under the 20 year plan would amount to 30 percent of the total economically recoverable reserves in Tract III, and about 1/2 of 1 percent of the estimated strippable reserves in the northern Powder River coal basin. Mining would recover about 90,500 tons/acre--about average for strip mines in southeastern Montana.

3. Other Geologic Impacts

The existing stratigraphy down to the lowest coal seam mined would be replaced by a mixed mass of broken rock with greater porosity and permeability. The existing stratigraphy, however, is not unusual and has no intrinsic value.

Mining would not interfere with development of other minerals: none of significance are known at the minesite. Any possible reserves of oil and gas would occur in rocks beneath those to be mined. Clinker, sand, and gravel would be disturbed by mining, but these materials are common throughout the region. Mining would not create any geologic hazards of consequence. Coal fires would be a potential hazard during mining; the hazard would be minor, because Westmoreland is committed to extinguishing fires when they occur. After reclamation, coal fires would be highly unlikely.

No paleontological resources of importance are known to exist in the rocks of the Fort Union formation that would be mined.

4. Overburden

The spoils resulting from the removal and regrading of overburden and interburden have the potential of creating reclamation problems. However, the mining and reclamation plan is designed to place part of the more desirable overburden at the surface. In practice, this approach has proven to be successful. Spot checks in June of 1979 of topsoiled spoils considered most likely to exceed State guidelines have shown clay, SAR, pH, and EC to be within acceptable limits.

There is a degree of mixing of overburden and interburden at the mine which results in higher than anticipated percentages of clay. High clay content limits infiltration rates, increasing runoff and erosion. Limited percolation into the spoils causes formation of rills and gullies as well as accelerated sheet erosion, causing high rates of topsoil loss.

In extreme cases, piping may result from water flow between spoils and topsoil. Erosion is also a function of slope characteristics. The interrelationships among and between spoil texture and mineralogy, topsoil texture, mineralogy and depth, and slope morphology cannot be quantified at the present time. Plant cover and density also affect erosion rates, but are not the controlling factor in a semiarid environment.

The relatively high clay content in the regraded spoil may be mitigated to a considerable, but presently unquantifiable, extent by the creation of stable complex or convex-concave slopes. (See Geomorphology.)

Chemically, the major problems associated with both overburden and interburden materials are frequent elevated values for extractable nickel (Ni) and molybdenum (Mo). Based on a discussion in Underwood (1977) it does not appear as though Ni poses a significant threat to animal life feeding on the reclaimed surface.

B. HYDROLOGY

Impacts on the hydrologic system would not significantly affect vegetation, wildlife, and land use on the reclaimed minesite or surrounding unmined lands. Hydrologic impacts would be slight to moderate, because mining would destroy part of a recharge area that supports several small springs in the major coulee system north of the mine area. Drawdown from the mine pit, both during and after mining, would also slightly reduce ground water flow toward the springs. Impacts under the 5 year mine plan would be more localized than under the 20 year plan; under the latter, East Fork Sarpy Creek could well be measurably impacted.

1. Surface Water

The most significant impact on surface water under the 5 year mine plan would be the loss of several small springs in the upper coulees tributary to East Fork Sarpy Creek. (See Ground Water.) Spring 276 would be destroyed; spring 232 and another small unnumbered spring at the coulee head above spring 274 would probably cease flowing as a result of a significantly lowered water table. Springs 264, 274, and 275 would probably experience measureable decreases in flow, or go dry earlier in the summer during most years. Other springs in the vicinity would be negligibly affected by mining, if affected at all.

Eventual approval of the 20 year mine plan would physically remove all of the above listed springs, as well as springs 260, 261, 263, 265, 266, and 277. In addition, springs 223, 271, 272, and 273 would experience a marked decrease or cessation of flow. (See Ground Water.)

Because most or all of the affected springs do not maintain surface flow very far down-coulee, surface water impacts due to mining would be limited to those caused by the local loss of the springs. No direct impact is likely on the intermittent surface flow of the Sarpy Creek system. Direct impacts on those streams are discussed under Ground Water.

Primary surface water impacts during mining would be the loss of surface runoff from the mining area. State and Federal regulations limit the surface discharge from mining areas, and accordingly, Westmoreland proposes to construct impoundments to control surface runoff from the mine. Under both the 5 and 20 year mine plans, loss of surface runoff to the Sarpy Creek basin would amount to less than 1 percent. This loss would be insignificant, because most or all runoff from headwater tributaries is lost to infiltration and evapotranspiration. Furthermore, sedimentation impoundments outside the mine pit would in most cases lose their containment by infiltration, thus allowing the same thing to occur to surface flow as would have happened naturally.

After mining, surface runoff from the reclaimed surface is expected to increase by a measurable, although unpredictable, amount (Lusby and Toy, 1976). The total increase in surface flow resulting from reclamation under the 5 year mining plan would be a negligible change in the runoff of the East Fork drainage basin. Reclamation under the 20 year mine plan may measurably increase peak runoff flows to East Fork Sarpy Creek, but at the expense of base flow. This should not cause any measurable impacts to downstream agricultural operations.

Surface water quality impacts under the 5 year plan would be negligible during mining. This is because all surface runoff from the mine area would be intercepted and treated, if necessary, prior to discharge beyond the mine perimeter. The Montana Department of Health and Environmental Sciences has issued two surface water discharge permits to Westmoreland Resources, Inc. Current discharge from the mine area is rare, however, and periodic water quality monitoring to date has revealed no water quality problems.

Reclamation under the 20 year mine plan would probably eventually result in increased total suspended sediment concentrations in East Fork Sarpy Creek (see Geomorphology, chapter III), although the extent and the timing of the increase is not certain.

Direct and indirect water consumption due to the mine would not conflict with other uses of water in the area. The Absaloka mine currently consumes about 150 acre-feet of water per year, most of which is obtained from the deep Madison aquifer. By 1984, when the full coal production level is reached, consumption at the mine would reach about 280 acre-feet/year from the same source. Indirect consumption by the additional population induced by the mine (mostly in Hardin) would amount to 130 acre-feet in 1984. By the year 2000, indirect use would be about 360 acre-feet/year and would be greater than the direct use at the mine. With this increase, Hardin's total water use would be on the order of 500 acre-feet/year--well within its current water rights of 10,900 acre-feet/ year. (See DES 79-41, U.S. Department of the Interior and Montana Department of State

Lands, 1979.) Water supply to the town of Hardin would continue to be adequate, although the occasional problem of inadequate pressure during large fires would presumably become more frequent. (See chapter II, Community Services.)

2. Ground Water

a. 5 year mine plan

The most serious impact which would occur on the ground water system under the proposed 5 year mine plan would be the alteration of the ground water flow which supports numerous small springs occurring in the head of a major coulee system draining northward from the mine area. (See Surface Water.) This impact would probably be insignificant because it would slightly reduce ground water flow toward and within this coulee system and would therefore only slightly limit its future use by lowering the ground water table. (See Land Use, Vegetation, and Wildlife.)

The impact would occur because the overburden to be removed by mining is the source of the ground water supplying most of the small springs in the heads of the coulee system. Approximately 40 percent of the recharge area for these springs would be removed under the 5 year plan. The impact on the springs would probably not be much greater, because drawdown created by the pit would not dewater any significant amount of undisturbed overburden. It would take about 16 years for dewatering to occur 1000 feet from the active mine pit (Hydrometrics, 1979b).

The ground water system would be most heavily impacted at the coulee heads, where the ground water which supports the smallest springs would be diminished. Impacts would decrease with increasing distance down-coulee (away from the proposed mine area) because of the increasing importance of the contributing undisturbed ground water basin, the diminishing influence of the pit drawdown discussed above, and because a significant ground water unit (the Rosebud-McKay clinker) would not be disturbed by mining. It is unlikely that any measureable decrease in spring flow would be detected down-coulee from springs 263 or 265 (figure II-1). There would be no hydrologic impact on East Fork Sarpy Creek.

The beginning of this ground water impact would occur when initial mining disturbance approached the ground water divide. Final disruption of the system and dewatering of the impacted springs would probably occur within 5 to 10 years following mining.

Surface runoff detained in sediment ponds at the permit boundary during mining would be partially lost to evaporation and partially allowed to infiltrate. The component which infiltrates may allow slight supplementary recharge to the coulee bottoms immediately below the sediment ponds. However, this balancing effect would be minimal.

The decrease in ground water flow through the coulee system tributary to the alluvium of East Fork Sarpy Creek would also be partially compensated for by increased surface runoff from the postmining land surface. (See Surface Water.) This would contribute water to the unmined coulees downgradient from the mine. This recharge would occur intermittently in response to spring snowmelt and occasional heavy rainfall runoff. Because even a doubling of runoff rates would provide only a small component of additional discharge from the affected portion of the basin, this phenomenon would have a negligible balancing effect.

Additional impacts on the ground water system would occur under the 5 year plan through the loss of 3 water wells. Wells which would be mined out under the 5 year plan are Nos. 274, 275, and 276. (See figure II-4.)

b. 20 year mine plan

Eventual approval of the 20 year mining plan would cause significantly more severe impacts on the East Fork Sarpy Creek ground water basin. The significance of these impacts is discussed in Land Use, Vegetation, and Wildlife. Because the 20 year mine plan area makes up 2.5 percent of the East Fork basin, and because of the dewatering effect of the mine pit drawdown discussed under the 5 year plan, it is reasonable to assume that a measurable and significant interruption of ground water flow would occur to the East Fork basin. Such a disruption of the hydrologic system could well constitute a significant impact to any subirrigation along East Fork Sarpy Creek near or downstream from its confluence with the three tributary coulees, especially during drought years. This loss of ground water flow would probably result in a seasonal water table drop in the East Fork alluvium and a consequent loss of surface flow during normal low flow seasons.

In the Middle Fork Sarpy Creek basin, eventual mining under the 20 year mine plan would remove at least 2 springs in section 36, as well as their recharge area (figure II-1); however, the ground water loss to the alluvium of Middle Fork Sarpy Creek would not likely be measurable. The loss of these springs was discussed in a previous EIS (Montana Department of State Lands, 1977). Data are lacking to make a more definitive prediction of ground water impacts on Middle Fork Sarpy Creek.

Following reclamation, increased surface runoff from the reclaimed surface (see Surface Water) would contribute slightly to increased peak surface flows in East Fork Sarpy Creek, due to both spring snowmelt and storms. Such an occurrence would compensate slightly for decreased ground water flow, but the timing of these contributions will differ. Whereas ground water flow through the coulee is relatively constant throughout the growing season, surface flows in response to weather events vary greatly in magnitude and thus in utility during the growing season.

Postmining ground water flow through the mine spoils would not *likely* reestablish springs initially destroyed by mining, nor does Westmoreland propose to attempt to reestablish springs by other means. Ground water moving through the spoil would likely *initially* follow the gradient of the base of the mine pit--assumed to be the base of the Robinson coal. Ground water entering the spoil from unmined coal to the south would *supplement vertical recharge to the mine spoil, and result in the reestablishment of the postmining ground water system; however, the time necessary to reestablish this system cannot be predicted.*

Although current data are limited, there is no evidence that postmining mineralization of the ground water moving through spoils would measureably affect existing ground water quality beyond the mine site. Wells established in spoil after mining could potentially possess ground water of such inferior quality that it would be of marginal use for human or livestock consumption; however, the amount of water expected to saturate the base of the spoils *immediately following* mining would be very slight. Ground water of comparable quality exists at greater depth and would not likely be affected by the proposed mining.

Wells which would be mined out under the 20 year plan are 303 and 306; those which would probably be impacted by a lowered water level are: 64, 253, 257, 273, 299, 304, 314, 315, 316, 317, 318, 325, 327, 328, 332, 333, 334, 335, 336, 337 (figure II-4). Additional discussion of wells which would be impacted or mined out under the 20 year mine plan is contained in FES 77-17 (U.S. Department of the Interior, 1977).

C. CLIMATE

No significant impacts on the climate of the area are expected. Precipitation might increase slightly in the immediate vicinity of the mine due to fugitive dust forming condensation nuclei, but the increase would probably not be detectable.

D. AIR QUALITY

Air quality impacts would not be significant: existing enforceable standards would not be exceeded, and damage to vegetation or risk to human health would be limited. Controls proposed by the company or now in existence would keep emissions to less than those encountered at some other strip mines in the Powder River coal basin. However, particulate and gaseous emissions from the mine would be approximately twice current levels.

Potential particulate emissions would total about 4,000 tons/year at a production level of 10 mty; controls proposed by Westmoreland would limit actual particulate emissions to about 1920 tons/year. (See table III-1.) About 40 percent of the emissions would be coal dust, most of

TABLE III-1.--Estimated potential and controlled particulate emissions, Absaloka mine, 10 mty production level

[Source: U.S. Environmental Protection Agency, 1979]

Activity	Basic	Emission factor	Soil	Coal	Control strategy	Control (percent)	Soil	Coal
Topsoil removal-----	110 acres X 3 ft. depth	0.38 lb/yd^3	202,312	---	---	---	202,312	---
Overburden removal-----	2.5 yd^3/T X 10,000,000 T	.0056 lb/yd^3	140,000	---	---	---	140,000	---
Coal loading-----	10,000,000 T	0.12 lb/T	---	1,200,000	---	---	---	1,200,000
Overburden drilling----	80 holes/day X 260 days/yr	0.22 lb/hole	4,756	---	Water injection	90(?)	458	---
Coal drilling----	80 holes/day X 260 days/yr	1.50 lb/hole	---	31,200	Water injection	90(?)	---	3,120
Overburden blasting----	2 blasts/day X 260 days/yr	58.5 lb/blast	30,420	---	---	---	30,420	---
Coal blasting----	2 blasts/day X 260 days/yr	49.8 lb/blast	---	25,896	---	---	---	25,896
Haul roads-------	83,000 trips X 5 mi/trip (max)	6.8 lb/vmt	2,822,000	---	Water	50	1,411,000	---
Truck dump--------	10,000,000 T	.007 lb/T	---	70,000	---	---	---	70,000
Crushing:								
Primary-----	10,000,000 T	0.02 lb/T	---	200,000	Enclosed	99	---	2,000
Secondary---	10,000,000 T	0.06 lb/T	---	600,000	Enclosed	99	---	6,000
Conveyors-----	10,000,000 T	0.2 lb/T	---	2,000,000	Partial covers	90	---	200,000
Coal storage-----	1.6 acre 2.8 m/sec wind	1.6 u/acre/hr = wind speed	---	62,790	Enclosed storage	99	---	628
Train loading-----	10,000,000 T	0.0002 lb/T	---	2,000	Retractable chute	50(?)	---	1,000
Exposed areas-------	330 acre (est.)	1,200 lb/acre	396,000	---	---	---	396,000	---
Access road traffic-----	100 veh/day X 314 days/yr X 2 mi.	4.4 lb/vmt	276,320	---	Water	50	137,160	---
Totals--------------------------------------			3,871,628 = 1,936 T	4,191,886 = 2,095 T			2,337,350 = 1,169 T	1,508,644 = 754 T

Percent control--soil = 40
Percent control--coal = 64
Percent control--total emission = 52

Total potential emissions = 4,031 T/yr
Total net emissions = 1,923 T/yr

Plant emissions:
Total potential = 1,436 T/yr
Net = 140 T/yr
Percent control = 90

which would come from the loading of coal onto haul trucks. About 60 percent of the particulate emissions would be from soil and overburden, primarily off of haul roads.

The particulate emissions would largely be emitted from within the mine pits and would tend to settle out on the pit walls. Continued use of front-end loaders, which have a shorter drop distance than conventional coal loading shovels, would tend to reduce particulate emissions, as would the continued practice of minimizing the drop distance from the overburden dragline. (See Air Quality, chapter II.)

Particulate emissions would probably exceed the National Ambient Air Quality Standards at the high volume sampler near the shop and loadout facilities; this sampler, however, is within the mine boundary and thus does not provide data valid for enforcement purposes.

Dustfall (a measure of settleable particulates) would probably not exceed the standard set for areas of heavy industry such as the Absaloka mine. Dustfall measurements within about 1/2 mile of the mine already exceed the standards set for residential areas (see Air Quality, chapter II); with the projected increase in production the excursions would presumably occur more often. Dustfall would exceed the proposed Montana ambient air quality standards less often than the current residential standard. The proposed standard is less stringent because it is based on a 30 day average instead of a 3 month average.

Any excursions over the particulate standards would be due to the combined emissions from the mine and from nearby dirt roads and agricultural operations. Coal dust from the mine, however, would have a higher potential of causing health problems and vegetation impacts than soil dust. People living near the mine would not likely suffer health effects from mine-related dust. Workers at the mine would be exposed to higher levels of dust, which could cause health problems under long-term exposure. A study of workers at eastern surface coal mines (Fairman and others, 1977) showed evidence of pneumoconiosis among 2.5 percent of those who had done little underground mining; their mean exposure to coal dust was 21 years. It is difficult to extrapolate this finding to the Absaloka mine, except to say the mine workers would be subject to some risk; a considerably lower risk, however, than that experienced by underground coal mine workers.

Gaseous emissions from the present mine equipment would probably show occasional violations of the proposed Montana hourly average (0.17 ppm) for nitrogen dioxide (NO_2), based on the amount of NO_2 that would be emitted by the mine equipment listed in table III-2. The NO_2 and the hydrocarbons react to form photochemical pollutants, which would occasionally form a brown haze over the area, reducing visibility. Such episodes would be fairly infrequent, because calm days are rare in the area. (See Climate, chapter II.)

Ambient air quality standards for sulfur dioxide would probably not be exceeded because presently available diesel fuels contain less than

TABLE III-2.--Estimated gaseous emissions from the Absaloka mine

[Source: U.S. Environmental Protection Agency, 1977. Data are in pounds.]

	Number of units	Hours of operation[1]	CO	HC	NO_x	SO_x	Particulate
Dozers-------------	14	1S,5D	21,518	6,818	147,056	10,136	4,805
Dozers-------------	2	3S,7D	12,948	4,100	88,476	6,096	2,891
Wheel tractors-----	3	1S,5D	13,416	924	6,203	562	849
Coal haulers-------	12	2S,5D	66,888	21,816	380,880	22,644	12,780
Front end loaders--	8	2S,5D	18,400	6,224	79,872	6,056	5,724
Graders------------	4	2S,5D	3,578	899	17,472	1,431	1,015
Water tankers------	3	2S,5D	16,722	5,454	95,220	5,661	3,195
Rear dump truck----	1	1S,5D*,26W	1,394	455	7,935	472	266
Truck cranes-------	6	1S,5D*,26W	8,361	2,727	47,610	2,830	1,598
200 T crane--------	1	1S,1D*	172	65	944	59	106
Scrapers-----------	14	1S,5D	42,518	18,228	18,132	13,482	11,823
John Deere tractor-	3	1S,5D,8W	114	55	319	30	44

[1] S = Shifts per day; D = Days per week.

*Maximum values, exact operation hours varies.

2 percent sulfur. The present oil shortage may force the using of diesel fuel containing 4-5 percent sulfur; under those circumstances the ambient standard could be exceeded. There is currently no monitoring for SO_2 or any other gaseous pollutant at the mine. Vegetation within the mine boundaries would probably show reduced photosynthesis, mechanical damage, or other injury through particulates coating leaf surfaces or from nitrogen dioxide (NO_2). Vegetation within about 1 mile of the mine boundary would probably be only slightly affected--perhaps too little to noticeably reduce vegetative productivity. Animals grazing on affected plants or inhaling pollutants could be harmed, although grazing would not ordinarily occur within 1/2 mile of the active mine pits. Very little research has been done on this question, however.

Impacts on air quality would be short-term, lasting a few days, or in the case of vegetation, until the next growing season. There would be a noticeable increase in particulates as the production level increases and the mining moves closer to the monitors. Particulate monitoring should be continued, and a continuous NO_2 monitor should probably be placed in the prevalent downwind direction.

Visibility would be affected within 1 mile or so of the mine, primarily by NO_2 and hydrocarbons which combine to form photochemical smog. Particulates would reduce local visibility on windy days. The persistence of NO_2, hydrocarbons, and their photochemical products is not extensively documented, but is believed to be several days.

E. SOILS

The impact of mining on soils under the 5 year mine plan would be moderately significant. The major impacts would be those which are unavoidable at any mine in the semiarid West; however, erosion aggravated by the proposed long straight slopes on the reclaimed land surface could be avoided. The reclaimed slopes would integrate poorly with the surrounding undisturbed landscape and would be especially susceptible to erosion because of the dominant surface texture of fine sandy loam. The resulting erosion would cause an accelerated loss of replaced topsoil and increased sedimentation, reducing vegetative productivity. This would continue until the slopes developed a relatively stable configuration, and would probably require decades to centuries. (See Geomorphology, chapter III.)

Generally unavoidable soil alterations include a slight to moderate reduction of infiltration and percolation rates, a temporary increase in nutrients available to plants, and a complete alteration of soil distribution patterns. These alterations in the soil's physical properties would increase the amount of runoff during high intensity storms which are common in the region. Erosion rates would be further aggravated by the proposed slopes which differ significantly from those presently on the site and in the region. (See Geomorphology.) Reduction of soil organic matter, surface crusting, and the loss of soil structure and pore continuity would all contribute to increased runoff and erosion. The implications of increased nutrient release are discussed in the ensuing Vegetation section.

The company has demonstrated that some of these impacts can be greatly reduced by direct haul and replacement of the "A" (surface) horizon on the reclaimed surface. Approximately 50 percent of the "A" horizon soil material in the area affected by the 5 year mine plan would be direct hauled to the reclamation surface. The remainder would be derived from existing soil stockpiles or first stored, then placed, as needed. Those areas where direct-hauled soil material is used would have less loss of organic matter and would have greater survival of plant propagules and seeds. As a result, vegetative diversity and establishment and infiltration rates would be enhanced, with less runoff and erosion. The company has indicated that direct haul of "A" horizon soil material will be increased if logistically possible. Mining patterns and seasonal weather conditions (spring rains, deep snow, etc.) often combine to make direct haul impractical or undesirable. Plant survival and reproduction appears to be greatest if soil is removed and replaced during periods of plant dormancy. (See Technical Alternatives, chapter VIII.)

The relationships between topsoil material and overburden are both chemical and physical. Chemically, the potential exists for contamination of topsoil by interburden spoils. The procedures used by the company to avoid this problem include preferential surface placement of more favorable overburden spoils and sampling of the regraded spoils prior to topsoil placement. Analysis of randomly sampled topsoiled spoils (see table III-3) in June 1979 indicates that this approach has been successful. Box cut spoils, composed entirely of the more desirable overburden spoils were not analyzed, but were inspected in the field.

TABLE III-3.--Selected topsoiled spoil properties, Westmoreland Resources Absaloka mine

Sample	1	2	3	4	5	State suspect level
pH-------	6.9	7.5	7.2	7.4	7.6	>8.8
EC[1]------	4.5	3.4	3.5	5.2	1.8	4-6
SAR[2]-----	1.3	3.0	1.1	3.9	0.7	12
Clay[3]----	28	34	24	34	24	40
Silt[3]----	36	38	28	42	42	---
Sand[3]----	36	28	48	24	34	---

[1] Electrical Conductivity--a measure of soil salinity.

[2] Sodium Adsorption Ratio--A measure of soil sodicity.

[3] Data are in percent.

None of the tested parameters exceeded State suspect levels. (See Overburden, chapter II.) EC values between 4 and 6 would not be generally acceptable in topsoil materials, but may be in regraded spoils. However, there does appear to be a correlation between rill and gully erosion in the topsoil, and percent clay in the spoil material. Although the amount of clay does not exceed State suspect levels (40 percent), it is high enough to inhibit percolation and increase runoff and erosion. Based on geomorphic principles and field observations at the Absaloka mine, well designed slope configuration can minimize erosion rates and substantially mitigate the existing adverse soil and spoil characteristics. There are important relationships between and among topsoil, spoils, and slope parameters which cannot be quantified based on present knowledge. Complex slopes which are convex-concave (flattened S-shape) appear to have much lower erosion rates than the straight or convex slopes which are commonly found on reclamation surfaces. (See Geomorphology.)

No reclamation plan has been submitted for the remainder of the 20 year mine area. A number of coulee soils would probably be lost in both form and function because the drainages on the reclamation surface would not be spring fed, and the adjacent slopes would be sharply reduced. Other unavoidable impacts would be the same as those for the 5 year mine plan.

F. VEGETATION

Impacts on vegetation would be of relatively minor significance under the 5 year mine plan and of much greater significance under the 20 year mine plan.

There are no known threatened or endangered species in or near the proposed mine area, so no impacts on these species are expected.

Mining would result in the incremental destruction of existing vegetation on about 360 acres in the Tract III area during the 5 year permit period and on about 2,900 acres, including previous disturbances, by the end of the 20 year mine plan. About 22 additional acres of existing vegetation would be eliminated by the relocation of the county road. Offsite impacts to about 1 to 2 acres of drainage-bottom vegetation are anticipated, owing to the disturbance of the hydrologic regime. (See Hydrology.) Although reclamation would establish a vegetation cover on the mined lands, the long term effect of mining would be the loss of a complex vegetation mosaic and a reduced species diversity and potential productivity. Impacts on vegetation would therefore be relatively significant. It is estimated that potential vegetative productivity would be slightly reduced for an unknown period. This estimate is based in part on the disrupted soil structure, reduced infiltration rates, and interrupted nutrient cycling due to mining. Given successful reclamation and sound management, even slightly reduced potential productivity would not reduce the premining stocking rate.

About 11 acres of vegetation would be destroyed for each 1 million tons of coal mined--about 110 acres/year at the anticipated mining rate. Many of the premining plant communities, their distributions, and their species diversity would not be established in the short-term, owing to the substantial alteration of the premining environmental characteristics responsible for the communities' development and maintenance, and the seeding mix used in reclamation. Existing agricultural plant communities would not be reclaimed because Westmoreland has not applied for alternative reclamation (82-4-332(7) MCA).

Mining under the 5 year plan would impact limited areas of ponderosa pine and skunkbush plant communities, and even less riparian vegetation, all of which are difficult to reclaim. Relatively minor offsite impacts would be imposed on the preatophytic vegetation (plants with long roots reaching to the water table) near two small springs in the upper reaches of the drainages north of the mine area. (See Hydrology.)

The reduction of surface and ground water would likely cause a corresponding reduction in the vitality (reproductive success) and vigor (relative size and health) of the communities. This would likely cause a successional trend toward plant species which tolerate dryer conditions. Because reclamation technology has not demonstrated an ability to reestablish hydrologic functions similar to those present, the reclamation of the mine area would not alleviate the impacts on this vegetation.

Impacts under the 20 year mine plan would be more extensive than under the 5 year plan. About 30 to 40 acres of drainage-bottom vegetation and ponderosa pine, all of which is difficult to reclaim, would be disturbed. The drainage-bottom vegetation in the upper reaches of the drainages north of the 5 year permit area would be destroyed. Offsite hydrologic impacts on vegetation would extend further down these drainages and in the drainages east of the 20 year mine plan area. (See Hydrology.)

The relocation of the county road would eliminate an additional 22 acres of existing vegetation of which about one-half would be in ponderosa pine communities. At the end of 10 years of mining the county road would again have to be moved, causing additional impacts on vegetation. No specific information has been supplied regarding the disposition of the road upon the completion of mining; therefore, the impacts are considered to be permanent.

Long term reclamation success depends on complex interactions of environmental factors, including surface stability, hydrologic regimes, soils, vegetation succession, and land management. Successful short term vegetation establishment, therefore, does not necessarily presage long term success. Data from Westmoreland suggest that reclamation would initially establish a vegetation cover which, relative to the premining communities, would be low in species diversity. Within the first few years following vegetation establishment, species diversity would decline further as perennial grass species (primarily a few cool-season grasses favored in reclamation seed mixes) became dominant and crowd out less competitive species (Montana Agricultural Experiment Station, 1978). This would tend to reduce livestock carrying capacity. (See Land Use.) Microsites resulting from the engineered topographic diversity would have only minor influences on species distribution during the early stages of reclamation; however, these microsites would exert considerably more influence on differential species establishment and distribution in later successional stages.

Substrate modification techniques and the direct haul of selected topsoils (described under Mitigating Measures in chapter I), in conjunction with the transplanting of trees and shrubs, would increase the species diversity and increase the likelihood of at least short term establishment of selected species. Westmoreland has had some initial success (2 years) in establishing ponderosa pine on reclaimed areas; however, this establishment does not ensure long term success as self-sustaining populations (Campbell, 1975). Should the success of transplantings be only short term, several species of trees and shrubs would be lost as self-sustaining populations for the long term.

Initial productivity of reseeded areas would be high, owing to the high nutrient availability resulting from the physical disturbance of soils, and to fertilization. Within the first 4 to 6 years, plant litter would accumulate, tying up nutrients such as nitrogen and phosphorus in an unavailable form. Productivity would then decline and the vegetation cover would open up, allowing a slow invasion of species from adjacent undisturbed areas (Montana Agricultural Experient Station, 1978), thus increasing species diversity. As the plant litter decomposed, nutrients would gradually return to the soil. During this time, established vegetation would be more susceptible to environmental extremes (e.g., drought) because of the narrow ecologic tolerances of the floristically depauperate (less diverse) vegetation. Several decades later when currently projected mining ends, incipient vegetation patterns would likely be recognizable in the earliest reclaimed areas. Eventually, these patterns would evolve into a more desirable distribution of vegetation.

Vegetation adjacent to the mine area, as well as vegetation established on reclamation areas, would be subjected to a variety of secondary impacts, the most serious of which would likely result from fugitive dust. Dust from mining, county road relocations, and other activities would impact vegetation to an unknown degree. Only in areas of extremely high dust deposition (mostly limited to within about 1 mile of the mine) would the physical accumulation of dust on leaves or the absorption of trace elements noticeably change plant metabolism and plant community structure. The presence of coal dust on soil surfaces may alter the local microclimate and thus affect the vegetation. Susceptibility to fungal infection due to dust deposition may increase (Manning, 1971; Shonbeck, 1960), thus reducing the nutritional value of the forage.

G. WILDLIFE

Impacts on wildlife under the proposed 5 year mine plan would be of minor significance. Impacts under the 20 year mine plan is anticipated to be relatively significant, owing to the destruction and deterioration of vegetation which presently supports a high diversity of wildlife species. A reduction of the floral diversity and an elimination of the vegetation mosaic would reduce the carrying capacity of the mine area for many species. The reduction in carrying capacity would result from the loss of contrasting vegetation types which presently satisfy the alternating (seasonal) needs of the more mobile species and from the failure to reestablish specific habitat characteristics upon which some less mobile species depend. Off-site hydrologic impacts would affect water availability and vegetation, thus inflicting additional impacts on wildlife species which use the springs and riparian vegetation north and east of the mine area. These impacts could not be mitigated except by mining a different part of Tract III. The county road relocation would also harm wildlife habitat and would result in the short-term interference of established migration routes and the disturbance of what is now relatively secure habitat.

Two endangered species, the peregrine falcon and the bald eagle, have been observed in the Tract III area. A peregrine falcon was observed once within the proposed 5 year mine area. Impacts on these species would likely be minimal because the birds only use the area occasionally during migrations.

Because most of the 360 acres of vegetation destroyed under the 5 year mine plan would include the easiest habitat types to reclaim, wildlife use on most of the reclaimed mine area would not be significantly affected. Very localized offsite impacts would likely result in the loss of some species--primarily amphibians--from around the two springs which would be lost. The distribution of other species would shift an almost undetectable amount.

The proposed 20 year plan would disturb a considerably greater area --2,900 acres, all of which is presently used by wildlife. Much of the area is composed of habitat types (ponderosa pine, riparian, and skunkbush) which currently support more diverse wildlife populations; to date, these habitat types have not been successfully reclaimed at any of the strip mines in Montana. (See Vegetation.) The ponderosa pine breaks and coulee bottoms north of the mine area are relatively secure habitats and serve as major migration routes for mule deer, white-tailed deer, and turkeys. It is doubtful that present-day reclamation technologies could reestablish these habitat types to suitable levels within the next several decades to perhaps a century, if at all. Further, the destruction of ponderosa pine and riparian habitats would adversely affect nesting and perching sites for great horned owls, red-tailed hawks, Swainson's hawks, and other birds of prey. Several species of song birds such as warblers, mourning doves, and woodpeckers would similarly be affected by the loss of these habitats. Until such time as these habitats are reclaimed, it is unlikely that any of these species would make extensive use of the reclamation areas.

Westmoreland's wildlife monitoring data (Westmoreland Resources, Inc., 1978) reveals some use of reclamation areas by mule deer, white-tailed deer, turkeys, and sharp-tailed grouse. This is not unexpected because the existing reclaimed areas are in close proximity to undisturbed areas, and these animals typically make use of a number of habitats. It is not known, however, if current levels of use would be sustained throughout the 2,900 acre mine area at the end of mining. It is more likely that wildlife use would decrease as the distance from the undisturbed perimeter increased and the proximity to diverse habitats decreased. Thus, an overall reduction in the carrying capacity of the entire reclaimed area could be expected. Mining at this scale has not taken place in the northern Powder River basin long enough to accurately predict the long term effect of mining on wildlife.

Several species of wildlife, including ring-necked pheasants, waterfowl, and many of the small mammals would likely not be significantly impacted. There is a slight possibility that the fishery in lower Sarpy Creek could be impacted by an increase in the sediment load which may arise as a result of mining and reclamation.

The county road relocation would disturb about 22 acres of wildlife habitat. It would also result in increased human access to an area of relatively secure habitat for mule deer, white-tailed deer, and turkeys that is currently inaccessible by vehicle. This would increase harassment and/or the legal and illegal killing of game. This impact would be overshadowed as mining under the 20 year plan destroys the ponderosa pine and riparian vegetation south and west of the relocated road. The coulee bottoms crossed by the road relocation serve as migration routes for these species and the disturbance would induce some alteration in behavior. This impact would be of short duration and of relatively minor significance owing to the proposed mining sequence.

H. SOCIOLOGY

Impacts on the local society would not be significant. The rates and types of growth expected as a result of the proposed mine expansion would not be so rapid or so severe to be highly disruptive. Impacts generally would be less than in rapid-growth energy boomtowns such as Colstrip and Forsyth in the early 1970's. However, ranchers near the mine and people in Hardin would be subjected to additional pollution and stress, the pace of life would generally increase in Hardin, and the potential for conflicts between and among the white and Indian cultures would increase.

Dust, noise, and the generally increased stress of life could potentially cause higher incidence of mental and physical health problems, although the likelihood of such problems is not known. Mine workers, ranchers, and people in Hardin would be most affected.

1. Population Growth

The Westmoreland mine would cause population in Big Horn County and Hardin to grow slightly faster between 1980 and 2000 than it would in the absence of the mine. Neither Hardin nor Big Horn County would approach rapid "boomtown" growth conditions. The population of neighboring counties and towns would not be noticeably affected by the mine.

Big Horn County would grow at an average rate of 1.8 percent per year--from an estimated 1980 population of 10,600 to a projected population of about 15,000 by the year 2000. (See figure III-1.) The Westmoreland mine would contribute a little more than one-fourth of the county's growth, with most of the growth due to projected new mining in the southern part of the county and to natural increases among the Crow Indians. Annual growth rates would peak at slightly over 2 percent from 1995 to 2000, and would be lowest in 1981 at 0.7 percent, indicating that there would be no rapid fluctuations in population over the foreseeable future.

Nearly all of Big Horn County's growth that would be attributable to the Westmoreland mine would occur in Hardin. Hardin would grow from an estimated 1980 population of 3,200 to about 7,600 by the year 2,000. Annual growth rates would vary from a low of 2.3 percent in 1981 to a high of 6 percent in 1988. Hardin's population growth resulting from the Absaloka mine, about one-fourth of the total growth, would primarily be

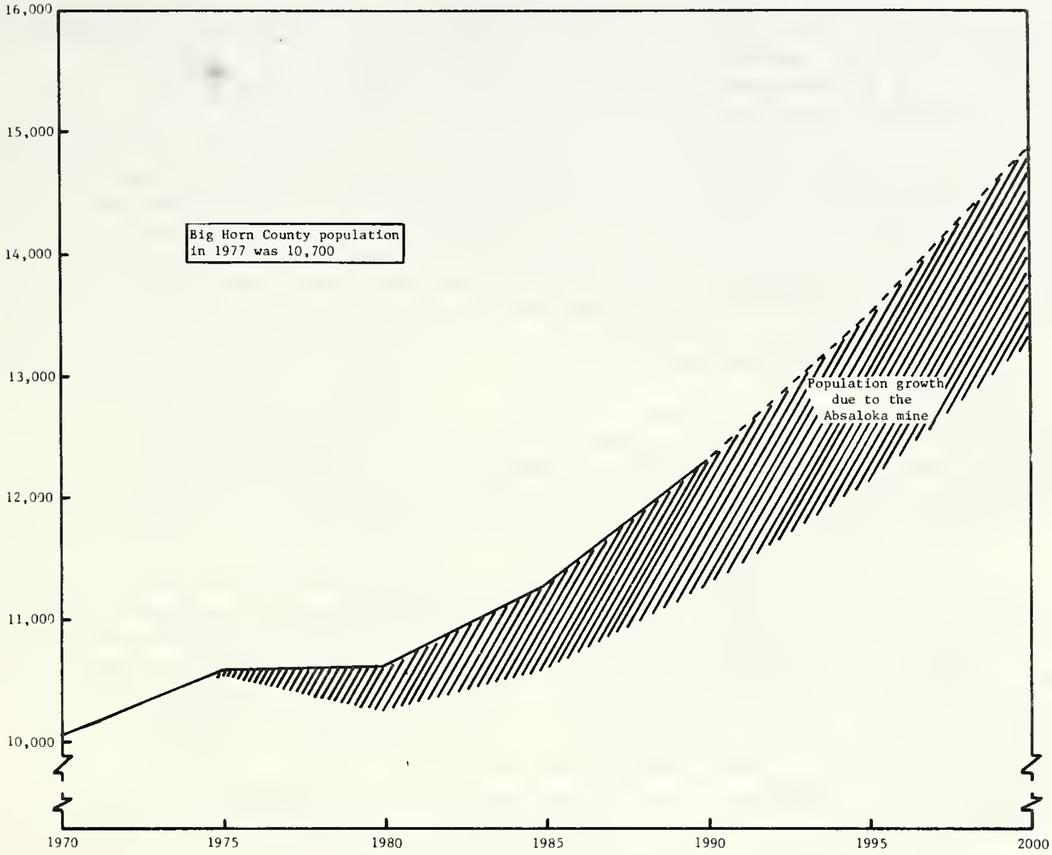

FIGURE III-1.--Population growth in Big Horn County due to the Absaloka mine. Dashed curve after 1990 indicates less reliable projection.

caused by increases in the ancillary employment sector due to the mine, not to increases in the number of mine workers. (See Economics.)

Growth rates in both Hardin and Big Horn County would be within the range considered "moderate" by Gilmore and Duff (1975), meaning that with adequate planning, community and social services would not be unduly strained, and no breakdown in the local society would be expected as a result of the rate of growth.

If past hiring practices at the mine continue, it is expected that about half of the workers at the mine would be local residents (Crow and non-Indian); thus, the mine would not contribute large numbers of new mine workers to the local population. Much of the growth in Hardin would be in the form of newcomers, however, who would be attracted to the new ancillary employment opportunities.

2. Population Characteristics

Most of the new people that would come into Hardin would be white. This would reverse the existing trend of declining white population in Big Horn County. The populations of Crow Indians and whites would not equalize; they probably would without further coal mining in the county. (See FES 77-17, U.S. Department of the Interior, 1977.)

The new workers at the mine would have a higher-than-average ratio of males to females. Many of these workers would be locally recruited, so there would not be a large influx of single males into Hardin. Most of the population increase in Hardin would be due to new ancillary employment. These people would presumably have more nearly equal numbers of males and females, and thus would tend to moderate Hardin's lower-than-average proportion of males to females. This would tend to slightly increase the pace of life in Hardin, but not nearly as much as would be expected in rural boomtowns where large numbers of single males move into a community.

The sex ratios among the Crow population would be affected in the same way--as more of the Crow benefit economically from the mine, changes in their economic and social status would tend to promote a more nearly equal proportion of males to females.

3. Social Environment

a. Hardin

The new people expected to move to Big Horn County and particularly Hardin would increase the diversity of local society. Many of the newcomers would move to the area in response to economic opportunities (both at the mine and in ancillary businesses); these people would have different interests on the whole than the long-time residents who are more closely tied to the agricultural economy. The influx of newcomers would add a source of social change to the area which would require accommodation of all groups to the new social conditions. The newcomers would spur demands for new social clubs, civic organizations, churches, and other cultural activities. The newcomers would presumably desire new and additional recreational facilities, although they would likely travel to Billings to meet some of these needs.

The increased diversity of life in Hardin would be achieved at a cost of many amenities of life in a rural community. For example, people would find it more necessary to lock their doors; the dependence on neighbors for company and mutual assistance would decrease; traffic and noise would increase; long time residents would notice more stangers and would know fewer of the townspeople by name. Recreation areas in and around Hardin would become more crowded. Many of the newcomers would have difficulty finding housing, due to the limitations of the sewage disposal system stressed by population growth. (See Community Services.) These changes are a cost of growth in any rural community, regardless of source; the Westmoreland mine would contribute a major share of that growth in the Hardin mining area.

Social impacts in Hardin would be less serious than in Forsyth or Colstrip, because the growth rates in Hardin would be less, and because the industrial developments affecting Hardin would be about 30 miles to the east instead of adjacent to the town as they are in Colstrip. Because the growth rates in Hardin would be lower, and because about half of the mine workers would be local residents, there would be fewer people to assimilate into the local society than in Forsyth in the early 1970's. As a result, the social system in Hardin would not be as severely strained as in a boomtown, but would nonetheless change in response to the assimilation of newcomers.

b. Ranchers

The ranchers living close to Tract III, especially on the east side of the tract, would experience increased impacts of the kind already occurring. (See Sociology, chapter II.) As the mine moves to the east, the sources of fugitive dust, noise, and blasting would be closer to ranch houses. Blasting has reportedly caused some structural damage to a few ranch buildings near the mine. This damage can be expected to increase and perhaps extend to additional buildings. The noise from the blasts can be heard for several miles, and is rather annoying to area ranchers, as is the fugitive dust from the mine (Toole, 1976).

Most of the ranchers in the area can be expected to oppose the mine (Mountain West, 1975; Montana Department of State Lands, 1977). Although the source of the occasional vandalism at and near the mine is unknown, such incidents would probably continue.

Traffic along FAS 384 and nearby back roads would increase (see Transportation), hindering movement of equipment and cattle. With more people in the vicinity of the mine, poaching of wildlife would likely increase, and cattle rustling could become a problem as it has in the Colstrip area.

The rural-agricultural society in the Sarpy Creek area would change due to the mine. Several families have left the area in reaction to the mine, and more families may leave as the mine expands. This would change social relationships and patterns of neighboring. The local ranchers are unhappy at the loss of these neighbors, and if more people leave, they would feel a further loss.

A number of springs and seeps would be destroyed or their flow reduced from mining. (See Hydrology.) This hydrologic disturbance would interfere with ranching operations (see Land Use) and would subject the ranchers to further stress.

c. Indians

Impacts on the Crow Indian population of Big Horn County are difficult to predict because data are lacking. The increased Crow employment at the mine would allow some of the Crow to better their economic and social position in terms of values held by the white culture. At the same time, the mine would increase conflicts between the white and Indian cultures, and potentially, within the Crow culture itself.

Increased royalties would allow the Crow to expand their program of buying out inholdings within the Reservation, and would also aid other Tribal programs. Indians who are now or are close to being economically secure would benefit from increased royalty distributions, and would be able to enhance their economic (and possibly social) position. On the other hand, more marginal or impoverished Indians would probably not benefit, because the royalty distributions would only displace welfare payments. (See Economics.) Of course, reducing the welfare rolls would be an advantage, but poverty-level Indians could reasonably be expected to spend their royalty payments rapidly in order to preserve their welfare payments.

As more of the Crow benefit from the mine, a considerable number would remain unaffected, thus increasing the disparity between those who benefit and those who do not. This may lead to tensions and stress between those groups.

The potential exists for changes in the Crow family structure as a result of increased wealth and status of the Crow mine workers and others whose economic and social position improved. These people might possibly have smaller families, which over a generation or more could change the social organization of the Tribe in unknown ways.

The potential for conflict between the white and Indian cultures would also increase, in the form of possible jealousy over new Crow wealth, conflicts over use of Indian land for recreation, and increased white-Indian interaction which could lead to animosity. The first conflict would be a direct result of royalty payments from the mine. The latter conflicts would come from the projected influx of predominantly white mine workers and ancillary employees.

I. ECONOMICS

The Absaloka mine expansion would not have a significant adverse economic impact. Hardin's tax base would not increase as fast as the need for new services, but this would only be partly due to the population increases caused by mining: the problem is typical of towns of rural Montana. The long term reduction in livestock grazing potential after mining would be minor--about $6,000 in annual gross income to livestock producers in Tract III. No significant fiscal problems for local school districts or Big Horn County are anticipated, because the mine is part of the school districts' and the county's tax base. By 1984, royalty payments to the Crow Tribe would dramatically increase the average Tribal member's income, assuming no change in the royalty's present disposition.

1. Employment and Income

By 1985 the Absaloka mine would have created a total of 573 jobs in Big Horn County (see figure III-2). Of these, 263 would be in the ancillary sector[1] and 310 would be in the economic base sector. About 315 of these jobs have already been created; thus, the approval of the proposed expansion would cause a total employment increase of 258 jobs. The mine payroll would continue to cause about two-thirds of the ancillary development; the royalty payment would provide the remainder.

After 1985, the royalty payment would become more important as a source of ancillary jobs. In 1988, after the coal in State section 36 has been mined and all 10 mty are produced from Crow-owned coal, the royalty payment to the Crow would become larger than the mine payroll. In the late 1990's, after the original 77 million tons of 6-percent royalty coal have been produced, the royalty payment would be responsible for at least two-thirds of the ancillary development. If the royalty rate is negotiated higher in 1984[2] and 1994, as appears likely, or if the FOB mine price increases faster than the average wage rate, then the royalty payment will eclipse the mine payroll sooner.

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[1] Ancillary employment was projected using the COALTOWN computer simulation model developed at Montana State University. In addition to the usual increases in economic base employment provided by jobs at the Absaloka mine, an employment equivalent resulting from the royalty payment was included. The royalty equivalent was estimated by dividing projected royalty payments by the estimated average annual take-home pay. Because the royalty rates used were held constant at 6 and 8 percent over the entire 1979-2000 period, and the FOB mine price was assumed to increase no faster than the average wage rate at the mine, the royalty employment equivalent and hence the projected ancillary employment increase should be considered a lower limit.

[2] It is possible that the lease will come up for renegotiation in 1982; however, it is assumed here that the terms of the lease remain constant through the year 2000.

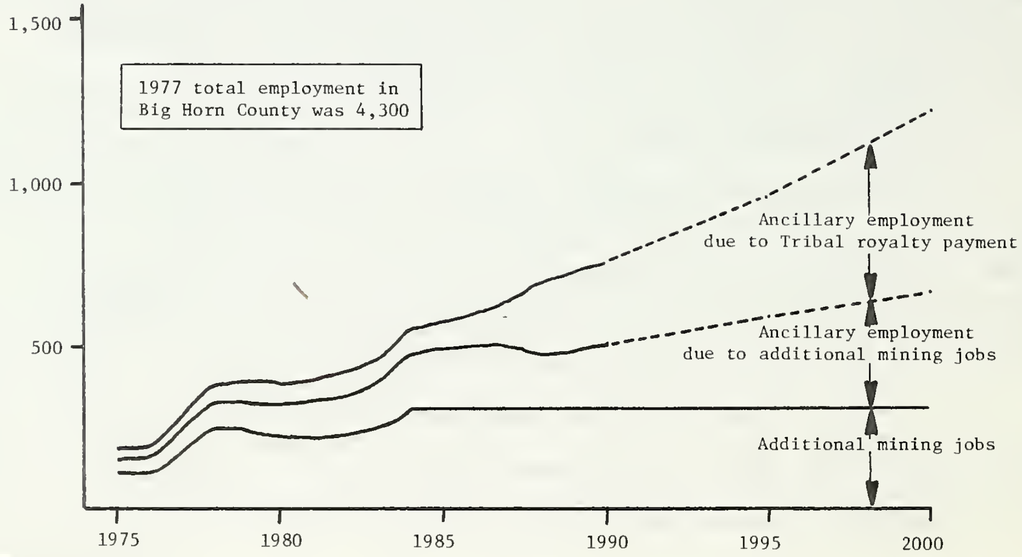

FIGURE III-2.--Additional employment due to the Absaloka mine, 1975-2000. Dashed lines show less certain projections.

Although the mine payroll would be large from 1985 to 2000, the royalty payment would be the more significant. By 1990, at today's prices and royalty rates, the Crow Tribe would receive more than $7.25 million annually. If the Tribe continues to distribute 60 percent of the royalty as a per-capita payment, and if the current population trend remains unchanged, each tribal member household would receive more than $3,300/year. This large a per-capita payment would substantially increase the average Crow household income, which was $3,165 in 1977. This may lead to a significant change in the consumption patterns and hence the growth rate of the trade and service sector in the county.

Crow Tribal members who receive assistance payments would benefit to a much lesser degree. About 5 percent of the Tribal members now receive Aid to Families with Dependent Children (AFDC) benefits; their grants would be reduced by the amount of the per-capita payments received. A somewhat larger number of Tribal members receive food stamps; their bonus would be reduced by about 30 percent of the amount of the per-capita payments, or they would be disqualified from the food stamp program if their per-capita payment raised their total income above the limit.

2. Taxation

Westmoreland would provide, directly and indirectly, about one-fourth of the State tax revenues received from Big Horn County. The State would receive substantial revenues from the severance tax, the corporate license fee, individual income taxes, and mineral royalties on coal from the State section. The largest portion of these tax revenues would come from the severance tax.

From 1980-85, Westmoreland would pay about $85 million in severance taxes at current prices. Westmoreland's share of total State severance tax collections (estimated to be over $500 million based on projected production during the period) would be about the same as at present. The State would also receive 17.5 cents/ton from the 21.3 million tons mined from State section 36 during the period--about $3.7 million.

Although the income received by Tribal members who work at the mine would be subject to Montana tax, the portion of the royalty payment passed through to Tribal members would not be subject to tax.

Big Horn County's fiscal position, on the whole, would improve if the proposed mine expansion were approved. The benefits would come principally from the additional taxable value provided by the gross proceeds value of the coal production. The Absaloka mine would provide about 40 percent of the increases to the county's taxable value over the next 5 years.

Big Horn County is currently receiving 1.5 percent of the severance tax collected from the mining companies in the county. The county will receive this revenue only until December 31, 1979. (See table II-11.) The projected increases in taxable value would not be sufficient to replace this lost revenue without an increase in the tax rate.

Big Horn County now depends on coal mining for about two-thirds of its taxable value. Additional mining would increase the concentration of the taxable value, and thus make the county's tax base subject to increasing risk of fluctuation due to changes in coal production (from weather or other forces beyond the county's control). This risk of fluctuation would, in turn, increase the interest that investors will demand (and receive) for purchasing general obligation bond issues of the county. The increased interest rate would make it relatively more difficult to finance needed improvements to the county's social capital. (See Community Services.)

As long as there were no interruptions in coal production, the two school districts in which the Absaloka mine pays taxes (Elementary District 17-H and High School District 1) would find it easier to finance their operations with the proposed mine expansion.

By 1985, the proposed mine expansion would increase school enrollments in the elementary and high school districts by about 180 students--about 11 percent more than current enrollment. The tax base would increase 4 to 5 times faster than enrollment during this period; thus, the mill levy would decline. The mill levy would still be higher than in the district which includes the Decker, Spring Creek, and proposed Pearl mines; that district is near the statutory minimum tax rate because it has relatively few students in it. In contrast, nearly 70 percent of the students in Big Horn County attend the districts in which the Absaloka mine pays taxes.

The City of Hardin's per-capita revenue (in constant dollars) would steadily decline, partly because of population growth associated with the mine. The decline would be to a level 5 to 10 percent below what would have been the case had there been no Absaloka mine. This is typically the case in surface mine development in southeastern Montana. The city's tax base does not include the mine, but its service area includes the miners, the additional ancillary employees, and their families.

The City of Hardin would have to decide which services it would cut back or not provide. The necessary new services (see Community Services) would be very difficult, if not impossible, to fund with local tax revenue, so the city would have to depend on outside assistance.

J. COMMUNITY SERVICES

Community services in Big Horn County and the town of Hardin would not be significantly strained. The greatest problem would be the financing of an additional primary school. Social services--in particular, mental health, drug abuse, and welfare--would lag behind demand. Impacts would not be as severe as those experienced in many rural western boomtowns.

The following discussion of community service needs is based on projections by McQuiston (1979). The projections are carried only until 1990 due to the difficulty of accurately predicting population growth beyond that date.

Hardin's high school has the capacity to absorb the projected 15 percent increase in enrollment with the addition of about 4 teachers. Hardin's primary schools do not have the capacity to absorb the projected 15 percent increase, and another school would be necessary. Because of the lack of State participation in funding capital outlay needs, it would be difficult to provide the necessary facilities, and the district would probably depend on outside assistance, such as a grant from the Coal Board. Previous coal development, due mostly to the Westmoreland mine, has increased the Hardin district mill levy to a high level. The community is not expected to approve additional local funds to finance continued impact.

The high teacher turnover rate, and an expected shortage of 10-15 teachers for the primary and secondary schools, would make recruitment and replacement of teachers difficult. Busing costs per student are expected to decrease.

All social services in Big Horn County would need to be increased in proportion to population increases. Impacts would be greatest on protective services and, secondly, food stamps. Because there would not be a large influx of new temporary workers, problems such as juvenile delinquency associated with boomtowns are not expected. Welfare services listed as inadequate at present (see Community Services, chapter II) would be in still greater demand. Recent revisions in the welfare laws may cause a further increase in the number of people on food stamps.

The new sewage system planned for completion by 1980 will provide adequate sewage disposal for both new and existing housing through 1990. Increases in population would be adequately served once the new system is available. The number of mobile homes would increase about one-fourth from 1979-90, compared to an increase of only 1 percent or so in the number of houses.

Fire protection is expected to be adequate through 1990 without major additions or improvements. The county sheriff would need several additional deputies and 1 or 2 more patrol vehicles. No unusual problems are expected other than the normal increases in crime that accompany growth. Hardin's hospital would need to add as many as 10 new beds and several physicians.

K. LAND USE

Impacts under the 5 year mine plan would be of relatively minor significance, because few springs and areas of high vegetative diversity and productivity would be disturbed. Impacts on land use would be locally significant under the 20 year mine plan, because the number of livestock and wildlife that could potentially use the reclaimed land surface would be somewhat lower than at present. From a regional perspective, however, impacts even under the 20 year plan would not be significant: agricultural or wildlife production from the entire Sarpy Creek drainage basin would not be appreciably reduced, and the lands to be mined are not unique within southeastern Montana.

The 361 acres disturbed under the 5 year mine plan area would be reclaimed to rangeland and wildlife habitat. Livestock grazing would probably not begin until shortly after bond release. (See table III-4.) All other agricultural uses of the mine area would not be feasible until after final release of the bonding for the entire Tract III lease area, when future surface owners could put parts of the reclaimed area into other uses.

TABLE III-4.--Land use in Tract III and State section 36

[Data are in acres]

	Premining January 1972	Existing January 1979	Projected 1985	Projected 1998
Undisturbed-----------				
Crops---------------	1,662			
Ponderosa pine------	3,385			
Rangeland*----------	8,800			
Other---------------	1,539			
Subtotal----------	15,386	14,559.4	13,919.2	12,541.2
Disturbed:				
Active mining-------	0	582.8	569.0	569.0
Facilities and construction------	0	106.0	106.0	106.0
Associated----------	0	33.1	21.0	21.0
Reclamation---------	0	2.8	666.1	666.1
Other---------------	0	101.9	101.9	101.9
Subtotal----------	0	826.6	1,464	1,464
Bonds released				
Crops---------------	0	0	0	0
Ponderosa pine------	0	0	0	0
Rangeland*----------	0	0	2.8	1,380.5
Other---------------	0	0	0	0
Subtotal----------	0	0	2.8	1,380.5
Total-----------	15,386	15,386	15,386	15,386

* Includes some open stands of ponderosa pine.

For a variety of reasons (see Soils, Vegetation, and Hydrology), the postmining surface would be essentially a modified cool-season pasture suitable for grazing in the spring and early summer. Grazing potential would be lower than the potential before mining because of decreased quality of forage; increased distance stock would have to go for water, loss of shade vegetation increasing stock water need; and increased susceptibility of surface to overgrazing because of loss of soil structure. Stock and wildlife would have to travel to the springs in the coulees more than 1/4 mile downslope to the east from the 5 year mine plan boundary. If the remainder of the 20 year plan took place as planned, those springs would also be lost and the animals would have to go at least 1 mile for water. Developed springs and wells, which are not currently proposed, would have to be established and maintained. Production costs on the postmine surface would also be higher because of the need for more extensive management, stock control, and the increased distance to water.

Under management practices similar to what has occurred historically, livestock grazing capacity on the postmining land surface would become more typical of other rangeland in the Powder River basin--about 0.25 animal-unit-months (AUMs)/acre. This would be a reduction in the premining cattle grazing capacity of about one-sixth, based on a premining stocking rate of 0.30 AUMs/acre estimated from Montana Department of State Lands records. If the surface owners following bond release do not establish hay fields, the cattle that graze on Tract III would become more dependent upon nearby hay producers for winter feed.

The improvements to the area transportation system (see Transportation, chapter II) would probably increase the population density along FAS 384. (See figure II-11.) The improved access would also open up the area to increased recreational pressure, trespass, and vandalism of unused remote structures.

By 1985, the increases in urban population, principally in Hardin, would also require some small amount of additional land--say 35-50 acres--for residential and commercial use. By 2000 the amount of land needed would be about 105-140 acres.

L. TRANSPORTATION

Impacts on road and rail transportation systems would not be significant. The projected increase in traffic would be well within the capacities of the road and rail segments most affected. Traffic on Big Horn County Road No. 55 and FAS 384 to Hardin would increase noticeably, producing additional dust and noise, but improvements to FAS 384 now underway would prevent any major congestion. Coal train traffic along the spur from the mine and along the mainline to the east would not approach or exceed the capacities of those segments.

Traffic impacts on FAS 384 from Spring Creek junction to Hardin would be minimal. By 1984, the number of cars and trucks using this road would increase 28 percent over the current level--from 250 vehicles/day to about 320 vehicles/day. Traffic would remain near this level through the remainder of the 20 year mine plan. At no time would the theoretical capacity of FAS 384 be exceeded, although traffic to and from the mine would compete with agricultural equipment and other local users. With the paving of this road from Hardin to County Road No. 55 (projected for completion in 1979), mining traffic would encounter little congestion, and traffic movement during shift changes would be relatively easy.

The proposed 5 year mine plan would mine through the area in which County Road No. 55 currently exists. Under the relocation plan approved by the Big Horn County Commissioners, the road will be moved northeast and will be approximately 1/2 mile longer than the existing road. The current 20 year mine plan would necessitate relocation of the road again in 10 years to avoid mining.

The approved road relocation will create both positive and negative impacts. Snow will drift less on the relocated road than on the existing ridgetop route, because the new road will be moved northward down into the coulees in an area protected from blowing snow. The new road will be equipped with modern livestock fencing and cattle guards--an improvement over the existing road (Ed Miller, Big Horn County official, oral commun.). The relocated road will be slightly longer to travel. Impacts on wildlife and vegetation in the area of the new road are discussed in their respective sections. Relocation costs will be borne by the coal consumer--a slight although long term impact, because the road would have to be relocated for both the 5 and 20 year mine plans.

Unit coal train traffic on the Sarpy Creek spur would increase from a current level of 20 trains/week to 38 trains/week--a 53 percent increase. At this level of mining, rail track capacity would not be exceeded; however, impacts such as increased noise, blowing fugitive coal dust, diesel emissions, and rail crossing hazards would occur. These impacts are discussed in DES 79-41 (Montana Department of State Lands and U.S. Department of the Interior, 1979) for a level of coal production somewhat higher than that now projected from the Westmoreland mine. Impacts from rail traffic are not considered to be significant in that EIS despite its higher projection of coal traffic.

The increased coal production would contribute to more rail traffic on the Burlington Northern main line to the midwestern barge load-out facilities at Pigs Eye terminal in Minnesota. During winter, the additional train traffic would add to existing problems sometimes confronting rail traffic. (See chapter II, Transportation) Coal barge traffic on the Mississippi would also increase and create more congestion on the existing river transportation, particularly during winter.

M. RECREATION

Impacts on recreation in Big Horn County are not expected to be significant. The population increase associated with the mine, the proposed improvement of FAS 384, and the relocation of the county road would likely cause slight increases in the use of public and private lands and existing recreation facilities. Increased demands on lands and recreational areas would likely result in a decrease of the quality of the recreational experience instead of a decrease in recreational opportunities. Because none of the land in and around Tract III is publicly owned, a potential for increased conflicts between landowners and recreationists exist. Further, a potential exists for increases in confrontations between Indians and non-Indians similar to the controversy over fishing in the Big Horn River. Additional impacts resulting from increased recreational use would include increased maintenance costs for facilities and a potential increase in litter and pollution at both developed and undeveloped sites.

N. CULTURAL RESOURCES

Six historic sites and two archeologic sites would be destroyed during the 20 year mining plan. (See Cultural Resources, chapter II.) All of these sites have been reviewed by the State Historic Preservation Officer for eligibility for inclusion on the National Register of Historic Places and have been determined not eligible (appendix B). Impacts would therefore not be significant, except to local residents who value the old homesteads that would be destroyed.

Additional undiscovered archeological sites may exist in the mine area, the destruction of which could potentially be a significant loss to man's understanding of prehistory. This impact, however, cannot be predicted with any reliability.

A beneficial effect of development would be the gain in knowledge derived from the cultural resource investigations which otherwise might not have been undertaken.

O. ESTHETICS

The greatest impacts on esthetic qualities would be the destruction of additional scenic and visual resources with the progression of mining; and, the perpetuation of an industrial setting imposed upon a rural environment. Because of the isolated location of the minesite, however, relatively few people would be exposed to those impacts. To the dozen or so families living near the mine, the esthetic impacts would probably be significant; however, the mine would negligibly disturb regional esthetic values. The mine would be visible only from limited areas outside of Tract III.

The relocation of the county road would lessen the impacts somewhat by routing traffic through an area from which mining operations would be less visible. Odors from vehicle emissions, fugitive dust, and sounds related to mining would continue to disrupt the formerly clean, quiet rural area.

Following mining, quiet would return to the minesite and the visual signs of mining would be largely camouflaged by reclamation. Although not visually offensive, the reclaimed land would lack much of the scenic appeal that previously existed.

CHAPTER IX

CONSULTATION AND COORDINATION

A. DEVELOPMENT OF THIS STATEMENT

Westmoreland Resources, Inc. submitted its application to the Montana Department of State Lands for a strip mining permit under the Montana Strip and Underground Mine Reclamation Act on July 21, 1978. The Department began preparation of this EIS shortly thereafter, in compliance with the Montana Environmental Policy Act.

The Northern Powder River Basin EIS Team, attached to the Department of State Lands, analyzed Westmoreland's proposal and wrote the Draft EIS (DEIS) and this Final EIS (FEIS) under the direction of the Department.

Information and comments were solicited from a number of State and Federal agencies, county and city officials, consultants, and citizens prior to publication. Agencies and groups which provided information or reviewed parts of the DEIS are listed below.

Government:

U.S. Department of the Interior--Bureau of Indian Affairs
--Bureau of Land Management
--Geological Survey

U.S. Department of Labor--Mine Safety and Health Administration

State of Montana--Office of the Superintendent of Public Instruction
--Legislative Council
--Department of Community Affairs
--Department of Health and Environmental Sciences
--Department of Social and Rehabilitation Services
--Department of Revenue
--Department of Highways
--Department of Labor and Industry

Big Horn County School Superintendent

Non-Government:

Burlington Northern Railroad
Crow Tribe
Westmoreland Resources, Inc.
Friends of the Earth
Montana State University

The analysis of hydrologic impacts and part of the analysis of geomorphic impacts was provided under contract by David Stiller, a private consultant. The cover and some of the maps used in the DEIS were drafted by Olson-Elliott and Associates, Inc., of Helena.

Westmoreland Resources, Inc. provided data and information on their existing and proposed operations and assisted team members with field observations and data collection. Chapter I of the DEIS was reviewed by Westmoreland for technical accuracy, but the remainder of the DEIS was not reviewed by the company or other people outside State or Federal governments prior to publication.

B. REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

In accordance with the regulations governing environmental impact statements of the Department of State Lands, copies of the draft EIS were made available to the public for their comments and suggestions. Comments were also solicited from various agencies and organizations, including those listed above. All comments received were carefully considered in the preparation of this FEIS.

The draft and final environmental impact statements are available for review in the following places:

- Montana Department of State Lands, 1625 11th Avenue, Helena, MT 59601
- Big Horn County Public Library, 419 North Custer Ave., Hardin, MT 59034
- The Rosebud County Library, 201 North 9th Ave., Forsyth, MT 59324
- Parmley Billings Public Library, 510 North Broadway, Billings, MT 59103
- Sheridan County Fulmer Public Library, 320 North Brooks, Sheridan, MT 82801

A limited number of copies are available on request from the Department of State Lands, Capitol Station, Helena, MT 59601.

C. COMMENTS AND RESPONSES

Written comments received from individuals, organizations, and government agencies are reproduced on the following pages along with the Department's response. Each letter received is identified by a number; each comment requiring a response is identified with a capital letter.

Two letters were received too late to include in the FEIS, and one letter was formally withdrawn by the commenting agency; however, the issues raised in those letters have been considered in preparing the FEIS.

Copies of all comments were sent to Westmoreland Resources, Inc. as required under the Montana Environmental Policy Act. Their responses are reproduced in section D of this chapter.

LETTER 1

DEPARTMENT OF THE ARMY
OMAHA DISTRICT CORPS OF ENGINEERS
6014 U S POST OFFICE AND COURTHOUSE
OMAHA NEBRASKA 68102

MROPD-A 15 October 1979

Mr. Leo Berry, Jr., Commissioner
Department of State Lands
State of Montana
Capitol Station
Helena, MT 59601

Dear Mr. Berry:

A We have reviewed the Draft Environmental Impact Statement (DEIS) on the Proposed Mining and Reclamation Plan for Absaloka Mine in Big Horn County, Montana. The main thrust of our review was the applicability of Section 404 of the Clean Water Act. According to the information contained in the DEIS, there is no indication that the proposed mining activity falls under the purview of our Section 404 authority. Should you have any knowledge that the mining activity will involve placement of fill material, including excavated overburden, in a natural lake, wetland, or a waterway, please let us know as a Section 404 permit may be required.

Sincerely,

JOHN E. VELEHRADSKY
Chief, Planning Division

A See the response by Westmoreland Resources, Inc. (Section D of this chapter).

LETTER 2

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
BILLINGS AREA OFFICE
316 North 26th St
BILLINGS MONTANA 59101

IN REPLY REFER TO:
Environmental
Quality

OCT 1 8 1979

Mr. Leo Berry, Jr.
Commissioner, Montana Department
of State Lands
Capitol Station
Helena, Montana 59601

Dear Mr. Berry:

This office has reviewed the draft environmental statement on the proposed Five Year Mining and Reclamation Plan for Westmoreland Resources, Incorporated. In general we have found the EIS to be concise, well prepared, and accurate in its presentation. We do, however, have several comments to submit for your consideration.

A 1. Page 1-1, Paragraph 3. This section states that Westmoreland Resources, Incorporated, plans to mine coal from the Absaloka Mine, between 1980 and 2000, at a maximum rate of 10 million tons per year (mtpy). This needs clarification in that Westmoreland has agreed in the amended leases with the Crow Tribe to mine 10 million tons by 1982, and 19 million tons by 1989.

B 2. Page III-22, Indians, paragraph 1. This section states in part that "impacts on the Crow Indian Reservation are difficult to predict because data are lacking." Providing that concurrence is given by the Crow Tribe, this office, as well as the Crow Agency, stands ready to make available any information on hand for your usage in assessing impacts.

C 3. Page III-29. It is stated in this page that the "grazing potential would be lower than the potential before mining because of decreased quality of forage." Does this statement mean that reclamation forage is less desirable in terms of palatability, composition, nutrients, or . . . ? The paragraph also states that livestock would be required to go further for water inasmuch as springs would be lost. It was our impression that many of the springs were undeveloped, and of such low flow that they existed primarily as seep areas, and were not of the quality sufficient for livestock usage.

A The Department is aware of the lease agreement between the Crow Tribe and Westmoreland Resources, Inc. (page I-4, paragraph 3). Page I-1, paragraphs 1 and 3, summarizes Westmoreland's proposals. It is the responsibility of this Department to determine if the proposals comply with the Montana Strip and Underground Mine Reclamation Act. It is not a function of this Department to determine the rate at which the company mines coal within an approved mine area.

B The data which are lacking deal with individual responses to increased wealth or income, and would necessarily involve new research.

C The statement on forage quality is primarily directed towards nutrient availability and species composition of the reclaimed surface based on a 9 month grazing system. As contained in the statement, however, this is not the single factor involved in the reduced grazing potential. About one-half of the springs identified in the draft EIS have been developed for livestock watering and the quality of water from these springs is suitable for livestock use. See revised chapter III, Hydrology.

D 4. Page VI-1, Paragraph 8. The second sentence states that the "35 - 50 acres of land used for new residential development in and around Hardin would be lost to other uses, mostly agricultural." This should be changed to read ". . . . would be lost from other uses . . . ."

E 5. Chapter VIII, Alternatives to Approve the Permit as Proposed. It is our suggestion that as a technical alternative the possibility of creating manmade livestock and wildlife watering sources be considered. It is entirely feasible that water impoundments could be constructed during reclamation activities that would serve as direct watering sources, as well as providing water to diverse locations by the usage of plastic piping. Water discharged from the piping and improvements, may well substitute for springs and seeps now in existence and fulfill their role in providing aquatic habitat, abundant vegetation, resting areas, hiding cover, etc. Costs would be considerably lower than construction at other non-mining areas due to the availability of heavy equipment.

F 6. In our correspondence to you, and dated October 2, 1979, we attempted to point out several areas in which the Crow Tribe and its members would suffer unbearable losses if the proposed Mining and Reclamation Plan is disapproved. These losses were based on the disapproval of this proposed Mining Plan and future losses possible by disapproval of other mining areas due to a precedent that might be established. The correspondence centered on three areas: 1) direct income and employment, 2) royalties to the Crow Tribe, and 3) the existing and proposed land purchase programs. By way of this letter we would like to further comment on the benefits received by the Crow Tribe, the State of Montana, and local communities, due to Westmoreland Resources, Incorporated, coal mining operations. The below listed information is adapted from FES 76-64, Crow Ceded Area Coal Lease, Tracts II and III, Westmoreland Resources draft environmental impact statement, and assumes development will occur at the rate as specified in the amended coal leases.

a. By the year 2000, and assuming Indian employment at the Absaloka Mine will average about 50% of the total hourly paid employees, the projected payroll for Crow Indians will be about $17,600,000. This figure assumes a rate of about 7% for cost of living increases.

b. Based on constant January 1, 1976 prices, annual royalty payments to the Crow Tribe of Indians would be $11,780,000

D Clarification noted.

E The creation of manmade livestock and wildlife watering sources is a feasible technical alternative. Impoundments and wells would alleviate some of the anticipated impacts on wildlife, livestock, and vegetation, particularly under the 20 year mine plan. Under the 5 year mine plan, impacts on existing water supplies would not be as extensive as originally forecast in the DEIS. (See revised chapter III, Hydrology.) All costs of establishing alternative water sources would be borne by Westmoreland, but long term maintenance costs would be borne by the surface owner if Westmoreland sells their surface rights following bond release.

F Comment noted. The economic importance of the mine to the Crow Tribe is considered in the analysis.

by the year 2000. Accumulated royalty totals for the period 1980 - 2000 would be about $201,122,000. At today's coal prices this figure would be substantially greater.

c. Based on January 1, 1976 prices the State severance tax would be $31,825,000 by the year 2000. Total severance taxes paid to the State for the period 1980 - 2000 would be approximately $558,075,000. Again, these figures would be much higher at today's prices.

d. According to the amended leases with the Crow Tribe, Westmoreland Resources will be mining coal at the rate of 19 million tons per year by 1989. 19 million tons of coal represents an oil equivalent of about 55,290,000 barrels, which would have to be purchased if operations at Westmoreland were curtailed. Translated into monetary value, this amount of oil represents approximately $1,658,700,000.

There are other comparisons and examples that could be enumerated upon, such as County gross proceeds and property taxes, and State resource indemnity taxes, which all serve to show the valuable contribution of this mining operation to the Nation, State, County, School Districts, and the Crow Tribe and its members. As stated in our letter of October 2, 1979, we ask you to fully weigh the effects of your pending actions on the mining and reclamation plan against the many benefits received by the Crow Tribe, County and State governments. We believe if these comparisons are made that alternatives will be found to substitute, in whole or in part for springs and seeps that may be destroyed through mining.

As of the date of this writing we have received comments from the Superintendent, Crow Agency, relative to this draft EIS. Although the Superintendent's comments are generally included within our correspondence, we have included them for your usage.

Sincerely yours,

Area Director

Enclosure

LETTER 3

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
CROW INDIAN AGENCY
CROW AGENCY, MONTANA 59022

October 12, 1979

IN REPLY REFER TO:
Land Operations, SMC
or call
638-2671 Ext. 66

MEMORANDUM

To: Area Director, Billings Area Office

From: Superintendent, Crow Agency

Subject: Review of Draft EIS on the Proposed Mining and Reclamation Plan for Westmoreland Resources, Inc., Big Horn County, Montana

Time doesn't formit an in-depth technical review by our staff of the EIS. We do, however, urge that the Westmoreland permit be issued.

A Loss of Westmoreland royalties by the Crow Tribe would virtually paralyze Tribal Government. Some ninty percent of tribal income in 1978 ($2,265,319.00) was derived from coal royalties from the Absaloka Mine. Over nine million has been received from 1974 to September 1979. Royalty payments have also been the main source of land purchase monies, per capita payments and as collateral for a now uncertain 6½ million land purchase loan.

B The springs in question, it seems to this office, could from a practical standpoint be replaced by ground water wells with either a motor driven or windmill operated pumps. A pipeline system supplied with water from the mine site is another alternative. Stock water ponds could also be planned into the reclamation.

I hope that the OSM and the Montana Department or State Lands will bear these ramifications in mind while determing the status of the Westmoreland mining permit.

Superintendent

LO/SMC/CELAMBERT:co

A Comment noted.

B See response 2E.

LETTER 4

Office of
Chief

United States Department of the Interior
BUREAU OF MINES
BUILDING 20, DENVER FEDERAL CENTER
DENVER, COLORADO 80225
Intermountain Field Operations Center

October 12, 1979

Leo Berry, Jr., Commissioner
Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Mr. Berry:

A The draft environmental impact statement on the proposed 5-year mining and reclamation plan for Westmoreland Resources, Inc., Absaloka mine, Big Horn County, Montana, has been reviewed by Bureau of Mines personnel. As was indicated in a previous draft environmental statement on the proposed 20-year plan of mining and reclamation, Westmoreland Resources Tract III, Crow Indian Ceded Area, Montana, no mineral resource other than coal has been mined in the area. Moreover, no other mineral resource of probable value appears to exist in the proposed area of development. Thus, we anticipate no significant impacts on mineral resources other than coal and have no objection to the DES as written.

Sincerely yours,

H. C. Stewart

H. C. Stewart, Acting Chief
Intermountain Field Operations Center

A Thank you for your comments.

LETTER 5

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Billings Area Office
Federal Building, Room 3035
316 North 26th Street
Billings, Montana 59101

IN REPLY REFER TO:
ES

October 18, 1979

Mr. Leo Berry, Jr., Commissioner
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Mr. Berry:

We have reviewed the draft EIS on Westmoreland Resources, Inc.'s Absoloka 5-year mining and reclamation plan.

A We found the draft EIS to be a concise document which adequately describes impacts resulting from the proposed mine. Particularly, we concur with conclusions in the statement describing impacts to wildlife populations resulting from destruction of springs and associated vegetation during the mining period. Because reclamation technology has not demonstrated an ability to reestablish hydrologic functions similar to those present in the upper tributary coulees to the East Fork of Sarpy Creek, mitigation measures should be considered. During mining, enhancement of spring areas not affected by mining should be explored. Continued enhancement of unaffected springs during the post mining period should also be considered as well as creation of artificial seeped areas in reclaimed sites. Seeped areas could be maintained by wells or surface water ponds.

A See response 2E.

Should you or members of your staff have any questions regarding these comments, pleast contact Dennis Christopherson (406-657-6750) of my staff.

Sincerely,

John G. Wood
Acting Area Manager

cc: Dave Simpson, Westmoreland Industries, Hardin, MT
Bob Martinka, Montana Department of Fish, Wildlife, and Parks, Helena, MT
Frank Cole, USFWS, Denver, CO (ENV)
Shirly Lindsay, Office of Surface Mining, Reclamation, and Enforcement, Denver, CO

LETTER 7

DCA MONTANA DEPARTMENT OF COMMUNITY AFFAIRS
Capitol Station, Helena, Montana 59601

Thomas L. Judge
Governor

October 19, 1979

MEMORANDUM

TO: Leo Berry, Commissioner, Montana Department of State Lands

FROM: Peggy Delaney, Planning and Impact Assistance Bureau, DCA

RE: Draft Environmental Impact Statement on the Proposed Mining and Reclamation Plan for Westmoreland Resources, Inc.; Absaloka Mine, Big Horn, County, Montana

This draft EIS on the proposed Absaloka Mine attempted to present a wide variety of complex issues concerning the proposal in a condensed, concise report. Its treatment of the strip mining and reclamation processes were excellent in accomplishing this task.

But, there are certain shortcomings in this draft which should be re-examined. The comments which follow are, for the most part, suggestions that will add to the quality of the comprehensive nature of this EIS.

A One deficiency of the EIS was its lack of supportive evidence for the judgemental statements it made. For example, many times throughout the entire statement, impacts were determined to be "not significant," but no indication was given as to how this decision was made. This sort of treatment of impacts was given not only to socio-economic and community impacts but to impacts on the physical environment as well.

Comments such as "community services in Big Horn County and the Town of Hardin would not be significantly strained (III-27)" are inappropriate unless they can be substantiated by conclusive data. From the information given in the statement on the inadequate services in Hardin, the facts would seem to lend themselves to a different conclusion.

If some explanation of how the impacts were derived to be significant or not significant were included in the discussion, these sorts of decision statements would not appear to be so arbitrarily arrived at. To merely suggest that significant

Harold A Fryslie, Director 406/449-3494

A The first three paragraphs on page III-1 explain the use of the term "significance."

Leo Berry
October 19, 1979
Page 2

impacts are those "which severly interfere with the use of a particular resource" does not provide the information needed if these impacts are to be abated.

B Another issue which should be discussed is the lack of clarity with which certain portions of the statement were addressed. For example, Hardin's growth rate from 1981 to 1988 was projected to rise from 2.3 percent to 6 percent (III-19). The statement further commented that "Hardin's growth would primarily be the result of increases in ancillary employment due to the mine, not to the mineworkers themselves." The distinction between these two entities in the context of this statement is not entirely clear. The difference should be explained so that the implications of these facts can be understood more readily. The discussion of impacts to rangeland potential also suffered from this lack of information. The reduction in postmining rangeland potential was determined to be significant locally, but not significant regionally. A reduction of 44 percent hardly seems "not significant," even regionally, unless the reduction to regional rangeland potential is presented.

C A number of issues might have been clarified by presenting them in a broader context. Hardin's inflation rate might have been compared to the rates of other impacts and non-impacted communities to determine if any impact might result on those people with fixed incomes. Also, although the EIS commented that Hardin would not be as severely affected by the proposal as other "boomtowns" (such as Colstrip and Forsyth), a better analysis could be made if comparable data for Colstrip, Hardin and Forsyth were presented. From this sort of information, the conclusion that Hardin will not be as severely affected could be readily deduced.

D Another problem with this EIS was the random inclusion of information which only hinted at certain possible impacts. For example, the increased problems as a consequence of alcoholism among whites in Colstrip was mentioned (II-29). The possibility of similar increases in Hardin was not known. Yet, the EIS later stated that social services "in particular mental health, drug abuse, and welfare, would lag behind demand." (emphasis added) This would suggest that the possibility of problems due to the abuse of alcohol was evidently thought to be quite probable. Such fragmented information should be integrated into the comments and conclusions pertaining to impacts. They should not be merely randomly scattered throughout. Other examples include possible disruptive effects on the Crow society (II-28, III-22), the possible effects of increased inflation on persons with fixed incomes and the implications for law and equity resulting from the possibility of increased conflict between Crows and whites (II-28, III-22) as well as conflict between ranchers and mine operators (II-29, III-22).

B It is explained in "Economics" as referenced and 2 paragraphs later in the same section.

Mining would temporarily displace and perhaps permanently reduce the grazing potential on a maximum of 15,386 acres. This reduction would represent a maximum of about 770 AUMs/year. Big Horn County's livestock industry is supported by a total of 2,051,000 acres of dry rangeland and 233,591 acres of commercial forest land with available grazing land (Comprehensive Plan, Big Horn County, Planning Board Jurisdictional Area 1974-1975, p. 62). At an average capacity of 0.25 AUMs/ acre (Montana Department of State Lands, 1977) this represents a grazing resource of 571,147 AUMs. The reduction at the Westmoreland mine would therefore represent approximately 0.01 percent of the County's potential.

C Local inflation rates are not available. The assertion of a relatively high inflation rate is based on theoretical grounds rather than empirical measurement and so the suggested comparison is not possible.

The growth rates for Colstrip and Forsyth for the period in question were: Colstrip 41 percent/year and Forsyth 4 percent/year (U.S. Department of the Interior and Montana Department of State Lands, 1979).

D The information is not scattered randomly throughout the document. Each section in chapter III begins with a summary of impacts, followed by documentation and further explanation. Chapter III should be read in conjuction with the description of existing conditions in chapter II.

Leo Berry
October 19, 1979
Page 3

An organized, integrated presentation of such information will aide decisionmakers in planning to alleviate these resulting impacts.

E Another consideration to be addressed is the issue of impacts to communities adjacent to Hardin and the Absaloka Mine area. The communities of Lodge Grass and Wyola were discussed with respect to the existing state of certain of their services and facilities (housing, water, sanitation; II-38). But the possible impacts accruing to these communities if the proposal is approved were ignored. Also, the section of the EIS addressing transportation (II-42) implies that, should the proposal be approved, Hysham will be impacted. The impacts to these communities need to be discussed.

F In addition to discussion of these impacts, as well as the others presented in the EIS, attention should be focused on mitigating measures to alleviate these impacts. No indication is given throughout the entire EIS as to the remedial actions Westmoreland will be implementing to relieve the anticipated impacts on community services and facilities.

G The EIS stated that ranchers were "the group of whites most concerned about and affected by the existing mine (II-29)." A list of their major complaints was even submitted. But no indication was given as to whether or not action was taken or restitution was made by Westmoreland to remedy these complaints.

Again, later in the EIS (III-22), reference to these problems was made. And, again, no mention of amelioration of the situation by Westmoreland was made.

This exclusion is an important one and should not be ignored by Westmoreland, Inc., especially if better relations between impacted persons and the company are to be achieved.

H With respect to mitigating measures, specific time designations of a proposal on the environment may be determined.

For construction, operation, and phase out of the mine would be very helpful to community planners in deciding which actions are appropriate at a certain point in the life of the mine. Westmoreland could possibly contribute to this effort by providing phase out schedules of the mining operation to community decisionmakers. This measure, as well as those pertaining to community services and facilities, would help impacted communities meet the anticipated demands placed upon them. Mitigation should be a joint effort between impacted communities and Westmoreland so that effective planning of provision of services and facilities may ensue.

E See chapter II, Community Services.

F-H See Westmoreland Resources, Inc.'s response to letter 7 (section D of this chapter).

LETTER 7

Leo Berry
October 19, 1979
Page 4

I Two additional issues should be discussed. The first concerns a comment made in relation to impacts of the proposal on ranchers. It states, "Most of the ranchers in the area can be expected to oppose the mine. Although the source of the occasional vandalism at and near the mine is unknown, such incidents would probably continue, and would increase antagonism between the ranchers and mine operations (III-22)." This statement, in the context in which it is written, implies that mine operators hold ranchers in the area responsible for the past incidents of vandalism. We question whether this sort of implication is appropriate in an EIS. The function of EIS is to present facts and the impacts based upon those facts so that the significance of a proposal on the environment may be determined. We do feel that it is not designed to be a sounding board for accusatory assumptions.

J The final issue concerns Figs. I-1 and I-2. These figures detract from the utility of the EIS. They are not clear, they have no legend presented with them and cannot be easily referred to by users of this statement.

The comments above were made so that a more organized, clear, and comprehensive final EIS may be constructed. Thank you for the opportunity to contribute to this EIS.

PD/ke

I The statements are not intended to be accusatory. The statement regarding tensions between the mining operators and local residents is speculative and has been deleted.

J We agree. We used the best reproductions available.

LETTER 8

STATE OF MONTANA
DEPARTMENT OF
FISH AND GAME

Helena, MT 59601
October 5, 1979

Mr. Leo Berry, Commissioner
Department of State Lands
Helena, MT 59601

re: Draft EIS - Westmoreland's Absaloka Mine

Gentlemen:

A We agree with your conclusion that there may indeed be significant impacts to the wildlife resource in the upper Sarpy Basin as a result of the expansion of the Absaloka Mine. Of all the existing strip mines in Montana, this area contains perhaps the most diverse and productive wildlife habitat.

A See revised chapter III, Hydrology, Vegetation, and Wildlife.

The ponderosa pine areas and the succulent vegetation in the drainage bottoms are probably among the more important components of the existing vegetative complex. Some success has recently been noted with re-establishing ponderosa pine; however, the effects of long-term climatic changes and the potential self-revegetation of pine have yet to be determined. The reconstruction of a substrate suitable for supporting succulent vegetation through late summer has yet to be achieved. More effort and experimentation should be aimed at creating conditions suitable for the support of this important wildlife habitat component.

In conclusion, extensive care and thought should precede the decision as to whether or not to allow mining to take place on the critical wildlife habitat included in the proposed mining plan.

Sincerely,
Robert R Martinka

Robert R. Martinka, Chief
Bureau of Baseline Studies

RRM/sd

cc: Environmental Quality Council
Keith Seaburg

LETTER 9

MONTANA HISTORICAL SOCIETY
HISTORIC PRESERVATION OFFICE
225 NORTH ROBERTS STREET • (406) 449-4584 • HELENA, MONTANA 59601

September 24, 1979

Mr. Leo Berry, Jr., Commissioner
Department of State Lands
Helena, MT 59601

DEIS Westmoreland Absaloka Mine

Dear Mr. Berry:

I have reviewed your above statement and the cultural resource inventory reports of Lynn and Dale Fredlund, Archaeologists, and Robert Murray, Historian. It appears that compliance with historic preservation has already been certified.

A The reports indicate the Westmoreland contracted for the excavation of site 24BH1728. The report of such excavation activities is not in our files. Would you please notify this office if such an excavation was completed, and if so, can you provide a copy of the report. If the work has not been completed, I recommend that we begin compliance as soon as possible while weather still permits.

A The site has been excavated. A copy of the documentation will be sent to your office.

B The reports indicate the presence of three rock art sites. 25BH154 is located in the eastern most portion of tract II in Sec. 9, T.1N., R.37E. 24BH168 is north and east outside of tract II in Sec. 31, T.2N., R.36E. 24BH6153 is also outside in Sec. 1, T.1N., R.36E. Assuming that tract II has already been mined, and two or all three of the sites still exists, I recommend the rock art be checked and re-evaluated by comparison with the earlier recording, to determine if the blasting from mining activities had any effect on the sites. If site 24BH154 still exists, monitoring is recommended on an occasional basis during the mining of tract III. (Please note that legal descriptions in the report are in error. Those presented here are taken from the archaeological map, which is assumed to be correct.)

B Tract II has not been mined. Current and proposed mining in Tract III is across Sarpy Creek at least 3 miles from the nearest rock art site mentioned; effects from blasting are therefore unlikely. The Department plans to monitor the weathering of sandstone rocks closer to the mine pit to see if blasting is affecting them.

The monitoring of rock art that has previously been identified will provide information for determinations of effect in future mining operations. I hope we will be able to take advantage of this opportunity to gather the data, and no longer rely on rumor or undocumented, verbal reports.

LETTER 9

Thank you for the opportunity to comment.

Sincerely,

Edrie Vinson

Edrie Vinson, Program Manager
for
Ken Korte, SHPO

EV/prb

DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
CONSERVATION DISTRICTS DIVISION

32 SOUTH EWING, HELENA, MT 59601
(406) 449-5640

THOMAS L. JUDGE GOVERNOR
TED J. DONEY DIRECTOR

September 28, 1979

MEMORANDUM

TO: Leo Berry, Jr., Commissioner
Department of State Lands

FROM: Pete Strazdas, Range Management Specialist Pete Strazdas
Conservation Districts Division, DNRC

RE: DES Absaloka Mine, Big Horn County

Thank you for the opportunity to review the DES on the Absaloka Mine in Big Horn County, I found it to be a concise and readable document.

A I urge you to require the use of a direct lift and laydown technique to preserve the 'A' horizon, as described in Technical Alternatives, pg. VIII-8 para. 3, wherever practical. The technology exists, and it would be inexcusable to continue treating topsoils in the usual methods which cause so much soil structure vegradation and loss of soil micro-organisms and viable plant life.

Also, I support the Dept. of State Lands' decision to require 'complex' slopes on reshaped spoils.

PS/km

"AN EQUAL OPPORTUNITY EMPLOYER"

A Thank you for your comment. These alternatives were developed to minimize degradation of the soil resource during salvage and replacement on regraded spoils. The "topsoil" stockpiles in the path of proposed mining, which must be rehandled as mining proceeds, are a major impediment to greater implementation of direct lift and laydown.

LETTER 11

BIG HORN BANK

P. O. DRAWER C • 402 NORTH CENTER
HARDIN, MONTANA 59034 • PHONE (406) 665-1310

October 15, 1979

Mr. Leo Berry, Jr.
Commissioner
Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Mr. Berry,

A I have read Chapters I, V, VI, VII and VIII of the draft environmental impact statement on Westmoreland Resources, Inc.'s Absaloka mine analyzing the environmental impacts of Westmoreland's proposed 5 year mining and reclamation plan.

If I understand this EIS correctly, it appears that approximately 24 million tons of coal will be mined from 361 acres of land covered by Westmoreland's 5 year permit application. On a rule of thumb conversion, this coal production would equal approximately 72 million barrels of crude oil over the 5 year span. This is an energy source which is vital to our country's welfare, and can be realized by the temporary disturbance of a minimal acreage in an area basically suitable to this type of mining.

I was born and raised in Big Horn County and have been familiar all of my life with the Sarpy area where the Absaloka mine is located. I feel that this area is particularly well suited to strip mining as far as environmental impact is concerned. The small acreage of land involved in this mining area is minute when compared to the vast acreage of similar land in that general area. Physical observation proves that the reclaimed land after mining is not much different than the original land.

I have visited the existing Absaloka mine on many occasions and have been extremely pleased with the reclamation work accomplished and planned for the mined areas. I think Westmoreland is to be congratulated on the job they are doing and I urge you to grant this mine permit to them based upon a continuation of their past performance.

A Thank you for your comments.

LETTER 11

Mr. Leo Berry, Jr.

October 15, 1979

Page 2

Westmoreland's impact on the general economy of Big Horn County is considerable and desirable. The business community of Hardin is very appreciative of the cash flow injection into the community and all of Big Horn County is appreciative of the very considerable addition to the tax base of the County.

In my opinion, the advantages of granting this mining permit to Westmoreland Resources, Inc. far outweigh any disadvantages which may accrue from this operation. I feel that if a vote were taken in our County whether or not to grant this permit, the vote would be almost unanimous in favor.

Again, may I urge you to grant the permit applied for by Westmoreland Resources, Inc. Their past performance, which has been excellent, should be the best indicator of their integrity and intentions for the future.

Sincerely yours,

Charles E. Sweeney

Charles E. Sweeney
President

CES:cmd

FRIENDS OF THE EARTH, INC xxxxxxxxxxx San Francisco, Califor xxxxx
Box 882 Billings, MT 59103
October 19, 1979

Leo Berry, Jr., Commissioner
Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Mr. Berry:

A The following comments are submitted in response to current Draft Environmental Impact Statement on Westmoreland Resources' Absaloka Mine. By this reference all my preceeding comments upon earlier environmental impact statements on the Absaloka Mine, including DES 76-45, DES 76-30, DES 73-59, DSL DES - Section 36, preliminary environmental reviews, environmental assessments or analyses, and other correspondence with the Department of State Lands and the Department of the Interior (where copies have been provided to DSL) are hereby incorporated as though resubmitted at this time.

A. Scope of the Analysis (Chapter I)

B Westmoreland's response to Appendix A must be circulated as a supplemental draft impact statement in order to allow public review if the commissioner would allow mining within the East Fork Sarpy Basin.

C The question of the uniqueness of the critical springs complex and general hydrologic regime remains insufficiently addressed, despite assurances from Governor Judge dated October 4, 1979 (enclosed). For example, another two to three square mile area with a similar number of springs, diversity of vegetation and wildlife should be identified, if possible.

D Since Crow Tribal officials are moving forward with plans to mine in the Crow Ceded Area, this EIS cannot continue to assume no further development. Based upon the state's original position to include the ceded area within the Northern Powder River Basin EIS, as articulated by Governor Judge, either this EIS or NPRBEIS must address potential cumulative impacts (Crow Tribe press clips - Oct. 12 & Oct. 16 enclosed).

E Dobson v. Westmoreland is now on appeal. Our position is that the Department of State Lands must address the impacts of the county road relocation within the context of this EIS even though construction is now essentially completed. Impacts upon springs will be especially useful information at this time. For example, it is rumored that 85,000 gallons per week were recovered from spring 263 during a part of the construction process, yet Table II-2 shows no flow data for that spring. Including the relocation at this time will help to assess potential reclamation efforts necessary to restore the area should traffic remain on the old county road after permit denial for mining within the East Fork Sarpy Basin.

C. Coal Production

F The EIS should identify the time frame and deliverable tonnage of all contractual obligations with consumers of coal from the Absaloka Mine.

E. Mitigating Measures

G 6. Land Use. Destruction of coal and overburden aquifers will eliminate all sources of potable water. Westmoreland proposes to construct wells to the sub-Robinson aquifer, although in response to my comments upon DSL DES - Section 36 the Department noted at Comment U that water of equal quality cannot be replaced, total dissolved solids and sulfates appeared moderately high and although not ideal for stock use would be generally suitable for that purpose, but in some cases may cause temporary diarrhea. Such a situation does not constitute acceptible mitigation.

A Correspondence received on previous environmental assessments have been responded to by the responsible authorities. It is not necessary to reiterate those responses in this document.

B ARM 26-2.2(18)-P290(3) provides that the final EIS must contain "new data, information, and explanations derived or obtained subsequent to circulation of the draft." The new information and analysis regarding the issues raised in the comment have been included. Re-publication of the draft is not required.

C A comparison of spring density on the basis of 2- to 3-square-mile areas is not available; however, as noted in the DEIS, based on a comparison of townships (36-square-mile units), the spring density in Tract III is not unusual when compared to other townships in the Powder River coal basin of southeastern Montana, or when compared to areas of similar topography and geology in the Wolf Mountains, Little Wolf Mountains, and the Ashland District of the Custer National Forest. Limited surveys by the U.S. Geological Survey further indicate high densities of springs in the following vicinities: headwaters of Fourmile Creek, south of Kirby; headwaters of Otter Creek; and between Cook Creek and Bull Creek, northwest of Birney (preliminary data supplied by USCS, Helena, 1979). USGS personnel emphasized that greater numbers of springs would likely turn up in about any area intensively mapped. This latter point was also documented by Westmoreland (Westech, 1977).

Thus, even though spring density comparisons have been made on the basis of townships and not units of 2 or 3 square miles, there is no reason to believe that spring density, expressed as a ratio of springs per unit area, would be significantly different.

Diversity of vegetation and wildlife was not addressed in the Hydrology section.

D The Department is aware that Crow Tribal officials are discussing plans for mining and power generation. But these plans are vague and therefore preclude detailed environmental assessment. When mining and facility siting plans are filed, environmental assessments would likely proceed. It would be speculative to include additional mining on the Crow ceded area in the absence of any mine plan applications. Cumulative impacts of existing and planned mines are considered in this EIS where appropriate.

E To the Department's knowledge, the Dobson v. Westmoreland appeal was not perfected within the time allowed and, therefore, the court's decision is final. In the fifth conclusion of law, the judge ruled that no EIS need be prepared by any Federal, State, or county authority. The Department did include discussions on the road relocation because it was felt that by doing so some impacts could better be put in perspective.

F Table I-4 presents the deliverable tonnages of coal to consumers from the Absaloka mine. Neither the Montana Environmental Policy Act nor the rules and regulations adopted pursuant to that act require the discussion of contractual time frames. Further, the company has not made this information available to the Department.

G Destruction of coal and overburden aquifers will not eliminate all sources of potable water. First, the coal seams at Westmoreland are not significant aquifers because they are not typically transmitting usable quantities of water. Second, alternative sources of water will still be available after mining in the same vicinity. In particular, most springs north of the proposed mining area will at most be only slightly affected (see revised text), and the sub-Robinson ground water unit will be unaffected by mining. Water quality in the sub-Robinson unit may not be precisely equal to the insignificant water supplies lost to mining, but it would be well within the natural range of spring water quality in Tract III and southeastern Montana. Only 3 of the 32 samples taken from the sub-Robinson unit (Dames and Moore, 1975) indicated water quality which could cause temporary diarrhea in livestock. Thus, ground water from the sub-Robinson, if needed, would probably be compatible with current uses.

Comments by E. Dobson for Friends of the Earth page 2

Chapter II

A. 1. Topography and Geomorphology

H The term "ephemerel" is inappropriate here. Ephemeral means lasting a very short time, certainly much shorter than the time of non-occurrence. Flowing water is present in portions of the major coulees perennially, and the flow of the major springs is also perennial. The seasonal drying up of certain portions of the coulees is not a function of fluctuation of flow at springs such as 265, 223 and 264. In fact, there are portions of the coulees which do not sustain surface flow in any season although major springs flow above and below. This potentielly unique situation has yet to be described in an EIS.

I 2. Stretigraphy

The complex faulting within the area of proposed mining has been ignored. Dr. Don Reichmuth, Professor of Civil Engineering at Montane State University, suggests thet groundwater may be intercepted by such faults and concentrated in the coulees, accounting in some degree for the occurrence of springs. This theory must be examined.

B. 1. Surfece Water

J To sey without qualification that there ere no perennial streams located within Tract III is to ignore the significance of the perennial springs and associated stretches of perennial flow within the coulees. Flow data are provided for only three of the sixteen springs that will be affected by mining and are identified within the EIS. Another ten springs that I have identified ere completely omitted in spite of DSL's response to my earlier submission in comment upon DSL DES - Section 36, to wit: "If you have additional information, the Department would be pleased to verify the location and quality of additional springs that have been located (and wells)." (Dobson comment responses G and I.) Since flowage data have been provided for less than 20% of identified springs and perhaps less than 10% of all springs that will be affected and eventually destroyed by mining, it is not surprising to find other data gaps such as those outlined by David Stiller in his letter in this draft et page XI-6. The significance of these springs was not lost upon the cowboys of the early cattle drives who drove their stock to this area for water. By implying through spring flow end well pumpage data omission that spring flow is insufficient to measure and wells are barely useful, this EIS, like others before, misrepresents the presence and irreplaceability of the groundwater resource. Further, it is important not to diminish the role of coulee flow once it has infiltrated the elluvium. Phreatophytic vegetation responds vigorously in such stretches of dry coulee surface, increasing both grazing and wildlife carrying capacity.

K Uniqueness may not be dismissed in the absence of a similar area of two to three square miles having a similar concentration of springs in a dendritic coulee system with diverse vegetation and wildlife comparable to the area in question. DSL Reclamation Division Assistant Administrator Dick Juntunen comes closest to the truth in his memo of August 20, 1979, included in the DEIS et page XI-13, in saying thet the "...presence of the springs appears to provide an uncommon arrangement of dispersed water sources, both in pond and marsh form, which in turn provide essential habitat for several species of wildlife."

L It is not et all documented that spring flow, at least in the major springs, drops off along with a "common water table drop during fall and winter months...". My personel observations over the past seven years indicate that the major springs are not significantly diminished although down-coulee flow may be lost sooner to infiltration in the ebsence of spring snowmelt saturation and precipitation. This seems to indicate that many springs are served by recharge other than immediete drainage precipitation, which would support the Reichmuth theory thet groundwater intercepted in faults plays a role in occurrence of springs. This theory is further supported by DSL's response to my Section 36 comments at Response J: Recharge to the overburden is (elso) occurring... laterally from the continuous unit to the southeast, and by USGS's response to my comments

H Surface flow in the coulees is ephemeral even though some perennial springs within the coulees cause limited stretches of the coulee bottoms to have perennial flows. Portions of coulee bottoms remaining dry in all seasons while perennial springs both above and below continue flowing have not been mentioned in EISs as being "potentially unique" because such situations are common in semiarid environments. Perennial flows can disappear into coulee bottoms only to reappear farther down-coulee where decreased coulee gradients, alluvial hydraulic conductivity, or cross-sectional area of coulee bottom material forces underflow to the surface again. This is very likely occurring to some extent in the coulees in Tract III and probably accounts for the existence of many of the springs.

I The apparent faulting in the area has been analyzed to the extent necessary for related ground water and does not appear to be significant. It is true that the major coulee north of the proposed mining area appears coincident with an apparent fault, but ground water movement is locally toward the coulee because the area is a shallow structural basin with its axis coincident with the coulee and the apparent fault. It is doubtful if the apparent fault has any greater relevance than this. Faulting in Tract III is not complex; the displacements and their magnitudes are typical of the Fort Union Formation, particularly on the flanks of the Powder River basin.

J All significant seeps and springs which could be impacted by the mine have been identified. (See revised text.) After the DEIS was written, Westmoreland measured spring flows and water quality. These additional data have been incorporated into Table II-2.

K See response 12C. "Uncommon" does not mean unique.

L There are insufficient long term data available on the major springs to document decreases in flow rates in the fall, although such a situation is common. The flow of the smaller springs had already decreased or ceased when observed in fall, 1979.

All available current data indicate that the overburden is recharged locally in the vicinity of the surface water divide separating East Fork and Middle Fork Sarpy Creek. The previous contention that the overburden unit is also recharged laterally from the southeast is incorrect in light of more recent data.

Comments of E. Dobson for Friends of the Earth page 3

on DES 76-45 at Response 39, p. 453: "...groundwater movement in the area is from the south and east," and by the fact that many of the major springs did not go dry in the draught years of the 1930's.

2. Groundwater

M How does data submitted by Westmoreland, indicating that all recharge to the overburden within the vicinity of proposed mining is derived from local precipitation, account for the relative stability of flowage among many springs? The Westmoreland contention is at odds with DES Section 36 comment response J, above, and possibly with the Reichmuth theory. I have requested of Department of Natural Resources and Conservation director Ted Doney that a hydrologist be dispatched to the area in order that DNRC's comments may address this question from a new perspective. I offerred to go along but there has been no response from Mr. Doney. In any case overburden hydrology must be described in greater detail.

N Since the general dip of the strata is to the northeast, to what extent does the high recharge of clinker on the north slopes of the Middle Fork contribute to recharge of overburden, Rosebud-McKay coal, and, ultimately, to the springs complex to the northeast? Dr. Reichmuth suspects the recharge to be considerable.

E. Soils

O Failure to map coulee soils, in some places rare and critical marsh soils, diminishes the validity of the EIS. These soils will be destroyed if their perennial source of water is removed by mining. These soils cannot be reclaimed and, with their associated vegetative component, will be lost, diminishing severely the qualities that provide for significant wildlife habitat in the area.

G. Wildlife

P Gary Matson has pointed out that hunting activities by raptors may be closely related to the clinker hills complex. A copy of his comments to the USGS is enclosed.

I. 2. Taxation

Q This section should discuss, and Table II-12 should reflect, the role of state school trust coal royalties, their sources and their local distribution. What is the FOB mineprice of Westmoreland Absaloka coal? How many acres will be mined and how many tons of coal removed from Section 36? How is the Coal Conservation Act applied?

K. Land Use

R Range productivity is listed at 0.38 AUM/acre, or 50% higher than the regional average. What is the state average? How is reclaimed land expected to compare to the average productivity?

S Chapter II fails to mention the existence of sandstone formations known locally as medicine rocks and mushroom rocks. Many of these formations exist within approximately one mile of the limits of the 20-year mining plan. Already the blasting has affected some of these delicate formations. Previously I have recommended that blasting vibrations be limited to 0.2 inches per second particle velocity in order to protect these features, domestic water wells and structures. The failure of the draft EIS to describe these sandstone formations is the most glaring omission of the document. I have photographed the medicine rocks extensively and enclose a sample for the record: 16 black & white 8x10 photographs, all of which were taken within approximately one mile of the proposed 20-year mining plan boundary and within alternative area #1, a primary target for future expansion. It is most probable that should the present permit application be approved, blasting will destroy most of these formations long before the question of mining them is raised.

M Given the scarcity of data on spring discharge over long periods of time, it is misleading to state that there is "relative stability of flowage among many springs." Nonetheless, long term variations in spring flow would logically be in response to long term fluctuations in precipitation. See response 12L.

N Given the ground water divide separating ground water flow systems of East Fork and Middle Fork Sarpy Creek (Figure II-3), local recharge to clinker on the north slopes of Middle Fork would have no bearing on the springs, overburden, or Rosebud-McKay to the northeast. Structural dip has no importance.

O The soils in the coulees which are not adequately mapped are not included in the 5 year mine plan, and therefore would not be disturbed. The lack of adequate detail in the mapping is mentioned to underscore the need for additional work if a mine permit is requested in these areas. Further, the soils themselves would not be impacted by a reduction in surface water flow at anywhere near the rate at which the vegetation would be affected. The soils, in this case, are of secondary importance to vegetation. Impacts on coulee vegetation are discussed in chapter III, Vegetation.

P See chapter II, Wildlife, paragraph 3, last 5 lines.

Q One of the sources of revenue for the State equalization funds referred to on p. II-36 is "95 percent of the income received from the leasing of State school lands after any deductions that may be made under the provision of Title 77, chapter 1, part 6;" (20-9-341, MCA). The EIS states that this source of revenue to the local school district, although important in the past, has become less important in recent years and will continue to decline as percentage of total school revenue.

State school trust royalties are generated from revenue received from the leasing of resources contained in State school land (in this case, from section 36 of T.1 N., R.37 E.) and amounts to 17 1/2 cents per ton mined. See response 12UU for the most recent F.O.B mine price. 241 acres will be mined and 30 million tons will be produced from section 36.

The Coal Conservation Act is applied according to rules contained in ARM 26-2.10(14). The Department has not determined whether the company's coal conservation plan is acceptable.

LETTER 12

Chapter III

The definition of "significant" is appropriate and appreciated.

A. 1. Topography and Geomorphology

T Any changes proposed by Westmoreland regarding postmining configuration of reclaimed slopes should be subject to public review.

2. Mineral Resources

U If the proposed 20 year plan would extract only 30% of the economically recoverable coal reserves of Tract III there appears to be ample coal resource to allow consideration of permitting mining in areas where groundwater would be less severely impacted. See comments under Chapter VIII below.

3. Other Oeologic Impacts

V Existing stratigraphy has intrinsic value in providing the matrix for the hydrologic regime; whether or not it is unusual has not been adequately addressed.

W While discussing other minerals this section fails to identify affected owners. For example the Redding family retained all minerals other than coal, which belongs to the Crow Tribe. Gravel has been adjudicated as a mineral (Billings Gazette, August 30, 1979). However, the Reddings have not been compensated for use of gravel in construction of the relocated county road and have not even received a copy of the present draft EIS even though John Redding is the principal tenant upon the lands identified in the 5 year permit application and the 20 year mining plan.

B. 1. Surface Water

X Down-coulee water flow varies more with general alluvial saturation than with spring discharge. This condition is in need of more accurate description in the EIS. Many springs and considerable down-coulee flows are perennial. High rainfall recorded in 1978 is offset by typical dry conditions prevailing between May and October, 1979, while spring flow has remained at the perennial discharge points.

2. Ground Water

Y The 40% figure for removal of springs recharge area under the 5 year plan seems conservative. Osienski (DEIS - p. XI-9) projects 50 to 75% removal and Hayden (DEIS - p. XI-3) projects 40 to 60% removal. Such recharge removal and associated impacts upon future establishment of the ground water divide and movement will eliminate such existing recharge.

Z The "...increasing importance of the contributing undisturbed ground water basin..." in reducing ground water impacts down-coulee from the mine is significantly exaggerated. For example, below spring 262 all tributary coulees contribute zero surface flow and show zero evidence of springs and seeps, occasional heavy precipitate run-off notwithstanding. Therefore, most ground water recharge and ALL spring flowage contributing to alluvial saturation originates in the heads of the coulees flowing northward. In fact, spring 265 alone may be observed to flow at a full third of the observable surface flow of the entire coulee system at the confluence with East Fork Sarpy Creek, indicating that much spring flowage recharges subirrigating characteristics of the coulee alluvium. This also accounts for the absence of continuous, active surface water channels noted in Chapter II B. 1., although short stretches of such channels exist. More common are the saturated marsh soils and phreatophytic vegetation. Therefore, destruction of the up-coulee springs complex will have a significant effect throughout the coulee system during the 5 year mining plan and ultimately upon the East Fork Sarpy Creek during the 20 year plan. This situation raises once again the question of spring discharge fed by ground water from the southeast, perhaps intercepted along complex fault lines undescribed in the DEIS. As well, impacts of the 5 year mining plan upon the East Fork cannot be dismissed.

R The State average is not known, and would not be an appropriate standard of comparison due to widely varying conditions. The 0.38 AUMs/acre figure has been revised using more recent data from Tract III to about 0.30 AUMs/acre.

S Blasting may be accelerating the natural weathering of the formations, although this has not been documented. The Department plans to monitor the weathering of the formations. If blasting appears to be eroding them, the Department may require mitigating measures such as blasting the perimeter of the mine first to interrupt shocks from subsequent blasts.

T Comment noted.

U Noted.

V The stratigraphy of Tract III is not unusual in the Fort Union Formation.

W The Montana Supreme Court declared in Adams v. Chilcott 36 State Reporter 1238 (1979) that the term "mineral" as applied to sand and gravel is inherently ambiguous. Therefore, the intent of the parties will govern whether gravel is a mineral under the terms of any particular agreement. The question of compensation for the gravel is a property issue and does not come under the purview of this Department.

X See response 12H.

Y The estimate of 40 percent removal of overburden recharge area used in the DEIS was based on proposed mining disturbance of overburden north of the ground water divide. Percentages greater than 40 were based on estimates of effective recharge area additionally lost due to the impacts of pit drawdown. More recent and appropriate pit drawdown estimates (Botz, 1979b) have been submitted which substantially reduce total loss to the overburden recharge area to a maximum of about 40 percent. Further, recent studies (Envirosphere, 1979; Stiller, 1979) indicate that at least several of the largest springs have recharge areas only partially related to the overburden and which would not be disturbed by mining. See revised text, chapter III, Hydrology.

Comments by E. Dobson for Friends of the Earth page 5

AA Spring discharge used in the process of evapotranspiration is not "lost." Such an intense rate of evapotranspiration is only made possible by the perennial discharge of the springs. It is this very rate of evapotranspiration in the vigorous, diverse plant communities of the coulee systems that will be destroyed by mining of the hydrologic regime up-coulee. In fact, it might be said that all biological impacts of mining will be evidenced in the severely diminished rate of evapotranspiration.

BB The statement that "Good quality ground water exists at greater depth..." is inconsistent with findings cited above regarding Chapter I E. 6. Greater depth refers to the sub-Robinson unit, and it has not been established that there is water fit for human consumption. In fact, in the homestead days the residents of the lower valleys who did not have a water source in coal or overburden would put up ice in the winter from the creek and melt it as needed for drinking in the summer. It is incontestible that the water found in the mineable strata is the best in the area, and it cannot be replaced.

E. Soils

CC This section fails to assess the impact upon marsh soils and other coulee soils through elimination of springs up-coulee both during the 5 and the 20 year mining plans, except to say that they would probably be lost. Loss of such soils will have a significant effect upon the carrying capacity of the general area, which is presently rated as 50% higher than the regional average for cattle grazing. Wildlife habitat would be significantly diminished.

F. Vegetation

DD This section identifies impacts of the county road relocation as though it had not yet been constructed. This is a welcome approach but should have been preceded by a departmental prohibition upon relocation construction prior to 5 year mining permit approval.

EE Estimates are that potential vegetative productivity would be reduced on the order of 10 to 20 percent below current potential productivity. A 20% reduction would still place reclaimed potential productivity far above the regional average for unmined lands (0.25 aum/acre), a highly dubious assertion. Perhaps a more reasonable reduction from current productivity potential would be 50 to 60 percent, quite clearly unacceptable under Montana reclamation law.

FF The DEIS considers impacts of the road relocation to be permanent, but FES 77-17, p. 20, indicates that the road will be returned to its original placement after mining. The present EIS should address alternative reclamation approaches and timing of reclamation for the newly constructed county road pending resolution of the immediate 5 year permit decision.

GG For purposes of the pending permit decision, trees, shrubs and phreatophytic species in general may and should be assumed to be lost if mining is allowed.

G. Wildlife

HH This section is generally good, although there is no discussion of effects of harrassment by blasting. Blasting frequencies may increase drastically in the future, and this impact must not be ignored. Pheasants up to three miles distant respond to blasting with disturbed cries, for example, and cumulative effects of such disturbance must be considered.

II In comments on DSL DES - Section 36 I pointed out that avian mortality has been observed in collisions with the dragline at night. There remains no indication that such incidents have been considered.

JJ Again, county road relocation is discussed as though it were not in place. It is clear from the described impacts that it is imperative that Westmoreland restore and reclaim the relocated county road at the earliest possible time.

Z Impacts on a watershed at the drainage divide become less significant downstream due to the increasing importance of the contributing undisturbed basin. This general case would likewise apply to a locally recharged ground water basin. The remainder of the basin below the springs contributes to ground water flow even though surface flow may be absent. The large proportion of clinker at the surface creates a condition where infiltration and ground water recharge is high and surface runoff is low, and results in "flashier" ground water discharges to East Fork. See revised hydrology text. The fact that all springs occur in the upper stretches of the coulee system only diminishes the relative importance of the undisturbed ground water basin; it does not erase this contributory influence completely.

AA See revised text for predictions of hydrologic impacts. There is no reason to believe that evapotranspiration rates would change below several of the smallest upper springs listed in the text.

BB Water in the sub-Robinson unit is of comparable quality to most present surface water supplies. See response 12G.

CC It is not the loss of soils which would be of importance, but the loss of surface water. The coulee channels and the dependent vegetation would be of primary importance. These losses are discussed in their respective sections in chapter III.

DD See response 12E.

EE There are no data available to substantiate the reduction of potential productivity, due to the relatively short term experience with reclamation. The 10-20 percent figure is a professional estimate based in part on the disruption of soil structure, reduced infiltration rates, and the interruption of nutrient cycling. Given successful reclamation and sound management practices, it is possible that the reclaimed surface could support a higher stocking rate than the unmined land now supports.

FF See response 12E.

GG Noted.

HH The effect is not expected to be significant in comparison to habitat losses.

II The effect is minor.

JJ Noted.

K. Land Use

KK This section is probably the least adequate and most contradictory of the entire draft. Impacts under the 5 year mine plan cannot be construed as of relatively minor significance when at least 40% and perhaps as much as 75% of the recharge area would be removed and future ground water movement might completely eliminate existing spring discharge.

LL The statement that 20 year mine plan impacts would not be significant from a regional perspective carries just as much weight under Montana reclamation law as John Muir's observation that one cannot pluck a daisy without troubling a star.

MM The statement that wildlife production from the entire Sarpy Creek drainage basin would not be appreciably reduced is contradicted by Dick Juntunen's observation in the Appendix, p. XI-15, that even temporary effects could have a system-wide (Sarpy area) impact.

NN The statement that the lands to be mined are not unique is refuted not only by failure to identify an observable similar place but by Juntunen's finding at p. XI-14 that the area "...appears to provide an uncommon arrangement of dispersed water sources, both in pond form and marsh form, which in turn provide essential habitat for several wildlife species." If the argument is made that just because there is no other place exactly like this one doesn't mean it is unique, or that everywhere is unique, the Department should consider the pattern of "uncommon arrangements" of dispersed water sources as a unique occurrence in eastern Montana.

OO To convert the present permit application area to "...a modified cool-season pasture" would not constitute compliance with reclamation law.

L. Transporation

PP A line appears to have been dropped from the second documentation paragraph, p. III-30. Again, the county road relocation is addressed as a pending event. If the 5 year mine permit application is denied, county road relocation costs to be borne by the consumer will be lower because the road will not have to be relocated a second time. A one-time reclamation cost for the unmined relocated road would be necessary in either case.

O. Esthetics

QQ The creation of a three-mile, 22-acre scar across a densely forested, deeply incised coulee system cannot be listed as an esthetic benefit. In this case and in all others, I suspect, wisdom and esthetics would be best served by allowing the passerby a view and to some extent an understand of the pre-existing scar, not the creation of another. It is not dissimilar from the practice and purpose of concentrating utilities within corridors. This section's Madison Avenue approach to esthetics is not realistic.

Chapter IV

RR Here and at four other places, at least, the reader is referred to DES 79-41, the Northern Powder River Basin EIS, whose boundaries should include the present proposed expansion and the Crow Ceded Area. This problem is addressed at Chapter I A, above. This chapter should discuss the Department of Interior's contention, expressed in a letter from the Geological Survey to the Environmental Protection Agency dated August 9, 1977, and at Response 16 to my comments on DES 76-45, that Westmoreland need not be held responsible for the destruction of springs on property that Westmoreland owns.

Chapter V

SS It is reasonable to assume that the 20 year mining plan would result in the destruction of all the significant recharge area of the north-trending coulee system, since there are no springs in the undisturbed lower tributaries.

KK Impacts on hydrology only make up part of the overall land use impacts. The land use impacts under the 5 year plan would be minor in comparison to the impacts of the 20 year plan.

LL The significance was in terms of its effect on land use in the region, not its significance under Montana reclamation law.

MM A system-wide impact need not necessarily reduce the wildlife production from the entire drainage basin.

NN See response 12C.

OO Conversion to a modified coal-season pasture does not imply that the reclamation bond would be released or the land deemed successfully reclaimed. Before such bond is released and the land declared reclaimed, revegetated areas would have to meet the requirements of law.

PP Noted. See text revision, chapter III, Transportation.

QQ The DEIS stated that relocating the road would lessen adverse esthetic impacts, not provide a net esthetic benefit.

RR This analysis contains a cumulative assessment based on different criteria than the regional EIS. Only existing and approved coal mines, or proposals which have active permit applications, are included.

SS Mining under the 20 year plan would destroy most or all of the significant recharge area of the springs in question, not the recharge area of the coulee system. The mode and timing of hydrologic response in the coulee system would be much different than what now exists, and would probably be one of increased surface runoff at the expense of gradual ground water discharge via springs through most of the year.

LETTER 12

Comments by E. Dobson for Friends of the Earth page 7

TT Mining within the 5 year plan may not have significantly less effect upon the spring discharge due to the removal of 40 to 75 percent of the recharge area cited above, and consequent change in ground water movement and divide.

Chapter VI

UU What is the most recent FOB mine price?

VV Wording on vegetative productivity should reflect the comment under Chapter III F, above.

Chapter VII

WW Permanent loss of trees, shrubs, and phreatophytic plant communities should be acknowledged. Wildlife habitat types would, therefore, be permanently lost.

Chapter VIII

B. Low Production Level

XX Assumption of a Westmoreland shut-down on production of Crow Tract III coal, when the 20 year plan only covers 30% of the economically recoverable reserve, is a blatant scare tactic. Perhaps the intention here is to prevent the Crow Tribe from demanding an increase in minimal 6% royalties when renegotiations come around as required in 1984. (Federal minimum royalty is 12½%.) Shut-down threats are concentrated at the end of 1979 and, for the entire mine, at the end of 1985. Westmoreland probably cannot afford to stop mining in 1985, as payments due on plant, specifically the draglines, require that production continue.

YY Listing impacts already permitted for mining on section 36 must not be allowed to cloud the question of impacts not yet permitted. As to section 36, what is the total permitted acreage for mining and how many tons will be removed over what time frame? There is no reason to expect that the East Fork Sarpy Basin hydrologic regime would be disturbed by mining outside the basin, as springs near the existing mine have not been affected. Breaching of the drainage divide would create disturbance.

ZZ Should Westmoreland attempt to shut down the Absaloka Mine, the Crow Tribe, the State of Montana, and Big Horn County should negotiate condemnation proceedings against Westmoreland. The Crow Tribe could hire an operator to continue mining, or perhaps incorporate a mining operation on its own.

AAA Under the exchange provisions of the Federal Surface Mining Control and Reclamation Act and the Federal Land Policy and Mangement Act the Department of Interior could provide for an exchange of interests in coal with the Crow Tribe in order that the Crow Tribe may continue to receive royalties based upon its coal reserve denied to mining. The Interior Department could then manage the East Fork Sarpy Basin as a hydrological reserve. Mining could occur only under national emergency during which Congress would waive environmental protection legislation, but there would be enough recoverable coal under the reserve to assure economic recovery. The Crow Tribe should receive exchange royalties at the 12½% federal minimum, or twice the rate the Tribe now receives.

C. High Production Level

BBB There is no discussion of the effects of increased blasting upon medicine rock sandstone formations, wildlife or human occupancy near the mine.

CCC There is no discussion of Westmoreland's prospects for attaining customers for increased production. In fact, Westmoreland may return a portion of its lease to the Crow Tribe. Therefore, the Department has an opportunity, possibly an obligation, to encourage and permit mining of the least objectionable lands. This possibility should be examined.

TT See revised text, chapter III, Hydrology.

UU The most recently reported average F.O.B. mine price is for 1978: $6.89 for the 6% royalty coal and $9.72 for the 8% royalty coal.

VV See response 12EE.

WW See revised chapter III, Vegetation.

XX The low production level places the analysis into perspective. Mining a different area within Tract III is discussed on page VIII-1, paragraph 2.

YY Westmoreland has a permit to mine 241 acres in section 36. They will recover an estimated 30 million tons of coal from this area.

ZZ Noted.

AAA Noted.

BBB See response 12S.

CCC This possibility is considered in chapter VIII.

LETTER 12

Comments by E. Dobson for Friends of the Earth page 8

D. Technical Alternatives

DDD The apparently viable technical alternatives are encouraging and should be applied where mining may be permitted, for example in Alternative Area #2.

RECOMMENDATIONS

EEE Friends of the Earth requests that the Department permit mining only outside the surface drainage boundaries of the East Fork Sarpy Basin and south of original county road #55. In conjunction with mining in state section 36, already permitted, this will provide ample opportunity for Westmoreland to continue mining while submitting a revised 5 year mining plan application consistent with protection of the East Fork Sarpy Basin.

FFF Should the Department of the Interior decline to facilitate an exchange of interests in coal commensurate with the needs and intentions of the Crow Tribe, the Crow Tribe may approach the Congress to legislate such an exchange. A bill to enact such an exchange has, at the request of Friends of the Earth, been drafted. We would be honored to assist the Crow Tribe in pursuit of an appropriate exchange. The Department should consider the implication of congressional action, as the courts have held that any alternative which may result from congressional action must be considered in order to comply with the National Environmental Polcy Act, after which the state act is designed.

GGG Any new information resulting from comments under the present draft EIS and such correspondence as those reprinted in the Appendices (Chapter XI) should be circulated for public comment as a supplemental draft EIS if, thereupon, the Department proposes to permit mining within the East Fork Sarpy Basin.

HHH The EIS should discuss any investment tax credit Westmoreland receives for mining Indian coal. There have been reports that an 8% tax credit is available to Westmoreland, a figure higher than the royalty reveived by the Crow Tribe: 6%.

APPENDICES TO THE ABOVE COMMENTS SUBMITTED HEREWITH

A. Sixteen 8x10 black and white photographs of medicine rock sandstone formations and press clip from the Hardin Tribune-Herald, July 18, 1968.
B. Correspondence and press clips in support of including Crow Ceded Area within the boundaries of the Northern Powder River Basin EIS.
C. Press clip - Hardin Herald, October 4, 1979.
D. Draft legislation creating the "Sarpy Basin Hydrological Reserve" and providing royalties for the Crow Tribe.
E. Letter to Interior Secretary Andrus, August 31, 1977.
F. Comments of Gary Matson on FES 77-17.
G. Well table compiled for FES 77-17, Figure 21, p. 107.
H. Letter to DNRC hydrologist Tom Patton re spring 276, June 18, 1977.
I. Comments of Ed Dobson on FES 77-17.
J. Letter to EPA Office of Federal Activities director, Rebecca Hamner, March 8, 1977.

Respectfully submitted,

Edward M. Dobson

Edward M. Dobson
Northern Great Plains Representative

DDD Noted.

EEE
FFF The Department will carefully consider these options.

GGG See response 12B.

HHH Westmoreland does not receive an investment tax credit for mining Indian coal. They pay two royalty rates to the Crow tribe. The first 77 million tons of coal which Westmoreland has agreed to sell to Northern States Power, Dairyland Power Cooperative, Interstate Power Company, and Wisconsin Power and Light Company is subject to a Tribal royalty of 6 percent of the F.O.B. mine price per ton. The balance of the coal covered by the lease between Westmoreland and the tribe is subject to a royalty of 8 percent of the F.O.B. mine price.

These appendices are on file with the Department and are available for public inspection. They do not require response in this document. See response 12A.

LETTER 13

CHEVROLET GRAHAM-STAUNTON, Inc.
Telephone (406) 665-1611 16 West 3rd Street
HARDIN, MONTANA 59034

October 12, 1979

Leo Berry Jr.
Commissioner
Dept. of State Lands
State of Montana
Capitol Station
Helena, Montana 59601

Dear Mr. Berry;

I have reviewed with great interest the 5 year mine permit application of Westmoreland Resources, Inc., Sarpy Creek operation.

Mr. Commissioner, I feel that you should approve this application for the following reasons. Westmoreland has done an outstanding job in the reclamation of the used land. In August of this year I took my visiting cousin from Arizona to tour the mine. He was amazed at the job that was being done contouring and reseeding the land. This amazement stemmed from the fact that his grandfather owned a mine in Pennsylvania and made no effort whatsoever to do the things that Westmoreland is doing. My impression is that they are returning the land to as good or better condition than they found it.

The State of Montana and Big Horn County certainly enjoy a substantial amount of taxes from the mining operation. This benefits not only Big Horn County residents, but also the entire state of Montana.

From my personal point of view as a businessman, energy is on everyones mind. We need more of it, not less. Westmoreland is supplying "the more" if given the chance. I would encourage the approval of this application. Yes, I have a selfish interest. I'm in business and the employment at the mine helps to make the Hardin area recession proof, and that is very important to me.

The excellent job of reclamation, tax benefits, energy involvement and economic benefits derived from the mine are the reasons that this application should be approved.

Very truly yours,

Jack D. Butorac
General Manager

JDB/cp

A Thank you for your comments.

LETTER 14

Hardin Chamber of Commerce

P. O. Box 450 *Hardin, Montana 59034*

October 12, 1979

Mr. Leo Berry, Jr. Commissioner
Department of State Lands
Helena, Montana 59601

Dear Sir:

In reference to the application by Westmoreland Resources for a new permit to mine coal in the Sarpy Area:

We the Hardin Chamber of Commerce would like to see a continuation of the coal mining activities. So far Westmoreland activities have increased the revenue to our local government and to the business community.

Since the onset of mining activities the community has continued to grow in an orderly manner. The people employed by the mining company have entered into our community and have contributed to the community activities.

We feel that since Westmoreland Resources has in the past mined in accordance with State regulations that they would continue to do so in the future.

Sincerely,

Del Morissette
President
Hardin Chamber of Commerce

A Thank you for your comments.

LETTER 15

Forsyth, Montana
October 17, 1979

Mr. Leo Berry Jr. Commissioner
Dept. of State Lands
Capital Station
Helena, Montana 59601

Re: EIS, Absaloka Mine
Big Horn Co. Montana

Dear Mr. Berry:

Thank you for including my name among those to receive a copy of the EIS of the proposed mining of State owned land at the Absaloka mine-site in Big Horn County.

You and your staff have done an excellent study of the proposed mine area, and I am grafeful that you are concerned with the continued existance of a groundwater system in So. Eastern Montana. It has been rather overlooked in previous studies.

From the map and statistics (pages II-12 and II-13, there is every evidence that the area proposed to be mined is vital to the continued well-being of Agriculture and Wildlife, alike, for how much area is yet undetermined.

A You may not be aware, since you are not familiar with this region as the writer, that there has been a marked rise in the water table since the completion of Yellowtail dam. While the Department Of Interior personnel maintain that this should not effect the water table more than two miles from the site of the dam, I wonder at their reasoning. The geological strata is beneath the water line, that holding the Ft. Union formation, and it would become more saturated further and further from the dam as time wore on.

The State section under discussion in this EIS is but one of many areas of the region that has seen a remarkable increase in groundwater in the last decade. For example, the drainages on the west fork of Armells creek, the next creek east from Sarpy creek, have springs and running streams where there has

A Yellowtail Dam has had no effect on ground water levels in the Sarpy Creek area. The dam and reservoir would affect ground water tables probably no farther than several miles from the dam. The higher water table in the Forsyth-Colstrip-Sarpy Creek area may be due to increased precipitation in recent years and changes in land and water management.

never been water within my recollection, nor that of an older generation, in the early part of this Century. This is not from excess rainfall, because the water has risen in that area all during the extremely dry summer of 1979. Hopefully, the State Land Department will find the means to extend the study of groundwater with this possibility in mind. It is pertinent.

B To further discourage the mining of this vital aquifer, at least the State controlled areas, tests of the water coming from all wells and springs from the Rosebud-McKay coal seam should be made to discover their mineral content.

In addition, the water in the spoils of the Absoloka mine should be tested and compared with the former.

The purpose of this in depth investigation is that, the water in the coal is poteable and palletable, while that in the mined pits becomes highly mineralized, unsuitable for anything. Having learned this from the experience of having drainages which have received water from the mine-pits at Colstrip, the example now on record from this ranch, with the State Water Quality Bureau, the U.S.G.S., and from my own tests, there is every probability that every well and spring adversely effected by the mining, along with many others as far away as to the Yellowstone, could become contaminated. For example, a spring near Forsyth dried up last year, the

C wettest year on record. Is it possible that the mining at Colstrip cut the water off at it's source?

Because you have already done an admirable EIS in your concern with groundwater, it would appear you should not stop now. It will be to your credit as well as the best interests of this State if you extend the study, and deny the permit for a longer period, until the study is completed.

Very truly yours,

Patty Kluver

B Water quality tests related to mining in Montana are commonly undertaken. In general, the current trend appears to be that postmining spoil water is initially more highly mineralized than ground water from undisturbed aquifers, although it is probably incorrect and certainly premature to conclude that the water is therefore "unsuitable for anything".

C It is highly unlikely that mining at Colstrip would affect ground water as far away as the Yellowstone River. This question is examined in DES 79-41 (U.S. Department of the Interior and Montana Department of State Lands, 1979).

LETTER 16

C. O. Lundberg

604 North Cody
Hardin, Montana 59034

October 7, 1979

Commissioner,
Department of State Lands
State of Montana
Capitol Station
Helena, Montana 59601

To Whom it may concern:

Gentlemen:

Responding to your letter dated September 17, 1979 re: E.I.S. Westmoreland Resources, Inc. Absaloka Mine, Sarpy Creek, Montana.

I would like to preface my remarks by saying that I am a frequent visitor to the Mine site and have been from the very beginning of operations there.

I have watched the building of the plant, construction of the draglines, the various roads, buildings, and other aspects of the operations at Sarpy Creek and have constantly been impressed by the responsible attitude of the people involved in this work. My comments following are based on those observations

A Reference is made to the economic input to the local and surrounding area. This could also be expanded to include the entire State of Montana I am sure. The increased taxable valuation has enabled Big Horn County and the City of Hardin in particular, to keep pace with the required services that are binding on a community at this time. County and School financing and general urban improvements are tremendous when compared to any problems that might be attributed to the mining operations at Sarpy Creek. County road building, a healthy business climate, law enforcement and the addition of outstanding additions of personell to our community are all pluses.

A. Thank you for your comments.

I appreciate the detail that you give concerning the methods to be used, the expected tonnage, consummers of the coal and the expected extent of the mining operation, etc. and find nothing in any of this to fault the applicant.

I have watched with interest the preparation of the land prior to mining and the complete restoration of the surface after the removal of the coal. I have been very impressed with the concern that Westmoreland Resources, Inc. is showing in this process. Granted there may be some reduction in the carrying capacity of the mined surface to support various forms of wildlife but in my opinion the reclaimed land will be superior to the rocky, barren land surrounding it in years to come.

The Mine itself can be blamed by the area residents for increased traffic, some additional noise and a small degradation of the air quality. However these same residents now enjoy better roads, lower taxes and a tremendous

Letter in support of Westmoreland Resources, Inc.

appreciation in their land values as a direct result of mining operations at Sarpy Creek.

Speaking as a member of the City Council of the City of Hardin, Montana but not as if my remarks are endorsed by that Council I can say that the City of Hardin has been helped as a direct result of the mining activity at Sarpy Creek. The City is benefiting better sewage disposal, better schools, much needed financial assistance in aquiring needed machinery and the business community of not only Hardin but other cities and towns surrounding the mine.

It is my sincere wish that the Commissioner of State Lands act favorably on the application of Westmoreland Resources, Inc. for permits to mine additional acreage at this time.

Very truly yours,

Charles. O. Lundberg

Charles O. Lundberg
Resident and taxpayer for over thirty three years.

LAW OFFICES OF

**Lynaugh, Fitzgerald,
Schoppert & Skaggs**

Thomas J. Lynaugh
William P. Fitzgerald
Thomas K. Schoppert
Robert H. Skaggs

Telephone 406-252-3461

Suite 500
Midland National Bank Building
303 North Broadway
Billings, Montana 59101

October 12, 1979

Mr. Bruce Hayden, Administrator
Reclamation Division
Department of State Lands
Capitol Station
Helena, MT 59601

Re: Westmoreland Resources, Inc., Permit
Application #00068

Dear Mr. Hayden:

A We are writing this letter as counsel to the Crow Tribe of Indians in order to protest any effort by the State of Montana to prevent the mining of Crow Indian coal which is held in trust by the United States of America. Currently, Westmoreland Resources has an existing lease No. 1420-0252-4088 approved by the Secretary of the Interior with the Crow Tribe. That existing lease was issued pursuant to the Act of May 11, 1938, 52 Stat. 347: 25 U.S.C. 395 a-f, commonly referred to as the 1938 Indian Mineral Leasing Act. Specific acts of Congress control the exploitation of Crow coal. See, Section 6 of the Act of June 4, 1920 (41 Stat. 751), as amended by the Act of May 26, 1926 (44 Stat. 658), as further amended by the Act of September 16, 1959 (73 Stat. 565), as further amended by Act of May 17, 1968, 82 Stat. 123.

As we understand your Department has suggested to Westmoreland Resources that it may not be able to mine all the Crow trust coal because of the applicability of certain provisions found in the Montan Strip and Underground Mining Reclamation Act and the Department rules adopted under the Act.

This letter shall briefly summarize the reasons why under Federal law and the Supremacy Clause of the United States Constitution, Montana officials cannot act under the coal of state law to restrict the use or enjoyment of trust lands for the benefit of the Crow Indians.

As a condition to statehood when Montana entered the Union it agreed by an irrevocable "compact" to observe treaties and federal statutes as they applied to Indians. In the Enabling Act

A Your letter does not address the analysis in the DEIS; therefore, no response is necessary. Your concerns will be considered before a permit decision is made.

of February 22, 1889, which provides _inter alia_:

> "That the people enhabiting said proposed States (States in this 1889 Enabling Act included the Dakota as well as Montana) do agree and declare that they forever disclaim all right and title to the unappropriated public lands lying within the boundaries thereof, and to all lands lying within said limits owned or held by any Indian or Indian Tribes' and that until the title thereto shall have been extinguished by the United States, the same shall be and remain subject to disposition of the United States and said Indian lands shall remain under the absolute jursidiction and control of the Congress of the United States. 25 Stat at 677"

In _United States v. Rickert_, 188 U.S. 432 (1903) the Supreme Court relied on the above quoted language to prohibit South Dakota from directly taxing Indian trust land. _Rickert_, _supra_, deserves careful review.

Recently, the people of the State of Montana recognized and reaffirmed the "compact" by enacting into the Montana Constitution the following provisions:

> "All provisions of the Enabling Act of Congress (approved February 22, 1889, 25 Stat. 676) as amended . . . including the agreement and declaration that all lands owned or held by any Indian or Indian tribes shall remain under the absolute jurisdiction and control of the Congress of the United States, continue in full force and effect until revoked by the consent of the United States and the people of Montana."

Another federal statutory scheme, the Act of May 17, 1968,[1] 82 Stat. 123, specifically controls the exploitation of Crow coal. This act which reaffirmed the viability of the Crow coal estate, also conditioned the terms of development.

The Court of Appeals for the Ninth Circuit in _Santa Rosa Band of Indians v. Kings County_, 532 F.2d 655 (9th Cir. 1975), _cert. denied_ 429 U.S. 1038, have prohibited state regulation (and where appropriate, state taxation) of Indian trust lands, finding in _Santa Rosa_, that the purpose of the I.R.A. was to permit the exploitation of Indian trust lands free of state regulation. The Montana Enabling Act in conjunction with the 1968

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[1] To some extent the Indian Reorganization Act of 1934 ("IRA") also is applicable. It abolished the allotment process.

"Crow Act", creates a broad federal preemption by their terms which prohibits the State of Montana by statute or otherwise from conditioning the exploitation of Indian lands.

The surface Mining Control and Reclamation Act of 1977 ("SMCRA") recognizes that certain standards are applicable to "existing leases" such as Westmoreland's No. 1420-0252-4088. *See*, SMCRA 710(c) and (d). One need not reiterate the environmental analysis that this lease has gone through, federally.

Needless to say, Westmoreland has obtained a federally approved 20-year mining plan pursuant to the above leases. Everyone who had the slightest interest in the approved mining plan was invited to comment as well as the State of Montana. That approval went unchallenged.

SMCRA 710(c) and (d) control the necessary environmental protections which are to be incorporated into the existing lease. It is clearly the duty of the Secretary of the Interior to enforce the existing lease and *not* the State of Montana's prerogative to insert additional *burdens* on the lease.

Caveat. This letter may be placed on the State EIS record; *however*, it cannot be regarded as a consent by the Crow Tribe to the State's jurisdiction.

Sincerely yours,

Thomas K. Schoppert

TKS:srs

cc Tribal Officers
Executive Committee
Joe Presley, Westmoreland

LETTER 18

Northern Cheyenne Research Project
P. O. Box 388
Lame Deer, Montana 59043
Phone (406) 477-6278

October 17, 1979

Mr. Leo Berry
Department of State Lands
1625 - 11th Avenue
Capitol Station
Helena, MT 59601

RE: Draft EIS on Absaloka Mine

Dear Mr. Berry:

I was pleased to receive a copy of the Draft Environmental Impact Statement on the Proposed Mining and Reclamation Plan for Westmoreland Resources, Inc. (hereafter referred to as the Draft). My area of expertise is hydrology, and I will restrict my comments to that area.

My on-the-ground familiarity with the area in question is limited, but I did walk the two coulees in the area that drain towards the East Fork of Sarpy Creek on September 4, 1979 at which time I determined the temperature and conductivity of the water discharging from the various springs in the coulees.

I am also very familiar with the geology and hydrology of the Northern Cheyenne Reservation which is located to the southeast of the site, on the far side of the Little Wolf Mountains, in the Powder River Basin. The Northern Cheyenne Reservation has an abundance of springs, with many springs having flows greater than 100 liters per minute and with total dissolved solids of less than 1000 mg/l. For the past year, I have been studying the springs of the Reservation trying to answer some fundamental questions: 1) Why do they occur; 2) How is the geographical distribution of springs explained; 3) What is the residence time of the water in the subsurface; and 4) Can the water quality in the springs be predicted on the basis of a geologic-chemical model.

A The springs in the East Fork drainage within the area in question are in my opinion, unusual in this region. The loss of these springs to mining would be the loss of an unusual geologic-hydrologic feature.

These conclusions are based on the following observations. I will agree that my data base is limited, but I did not find the available references on the area, FES 76-64, FES 77-17, and the Draft to be enlightening.

A The data presented do not alter the conclusion that the density of springs and the quality of their water is not unusual in the Powder River coal basin. The comment merely describes parameters of the local hydrologic regime which could have any one of many explanations, none of which are likely unusual. See revised text, chapter II, Hydrology.

L. Berry/DSL
10/17/79
Page 2

1) The springs are located in an area of low relief. Max elevation difference on a line through the area in question from the East Fork of Sarpy to Sarpy Creek is less than 100 meters.

2) Some of the springs in question are located within ½ mile of surface water drainage divide between the branches of Sarpy Creek, and as little as 30 meters below the highest elevation on the divide.

3) The abundance of springs in the coulees.

4) The physical and natural environments that occur as a result of the springs which is expressed by the dense vegetation in and adjacent to the coulees, the small wetlands in the coulees with substantial peat accumulation in areas, etc.

Though springs are abundance in some other parts of the Powder River Basin, the geologic and topographic setting of these springs is much different than is the case here.

I do not know the source of water in the springs, as the data I could obtain was limited, but I can make the following observations:

B 1) Page II-8 of draft EIS, 1979, apparently states that all of the water that discharges at the springs in the coulees initiates as precipitation to the Rosebud-McKay overburden. If this is true, as well as the contention on page II-8 that the surface water divide approximates the ground water divide, then the springs are even more unusual. Few other areas of low relief in this part of Montana have enough recharge such that springs of these sizes can exist so near a ground water divide. If you disagree, drive up Sarpy Creek toward the Reservation.

C 2) I had initially thought that the springs might be part of a regional groundwater discharge zone. Paragraph #2 on page II-9 implies that the potentiometric gradient is downward and therefore this can't be the case. Is this really so?

B See revised text, chapter III, Hydrology. Recent findings (Envirosphere, 1979; Stiller, 1979) indicate that significant spring discharge may also originate with a small area of clinker underlain by ash and unburned coal.

C Yes.

L.Berry/DSL
10/17/79
Page 3

D Page II-4 of the Draft states:

"The most prominent and important surface water features within the five and twenty year mine plan areas are the numerous springs located within several coulees tributary to Fast Fork Sarpy Creek."

I agree, but I find it astounding that the DSL has done no or almost no independent analyses of these important surface water features.

E The groundwater and surface section covers eight pages. Very little data, and no relevent data is presented to support the conclusion made on the eight pages. As far as the reader can ascertain all conclusions are merely conjecture.

F The most important question to answered is: Why are there springs in the coulees. The Draft merely skims the edge of this important question. On page II-4, paragraph 4, the importance of this question is circumverted by referring to some memo from Westmoreland stating that the abundance of springs in the area is not unusual, that it is a matter of scale. Scale or no scale, even within Tract III, springs are nowhere as abundant as in the coulee system draining to the Fast Fork. Why is this so? Until this is answered, the analysis of impacts is incomplete. Once this question is answered, then the unusualness of the springs can be ascertained definitely.

In the hydrology section as it now reads, I found several errors. The major ones are:

G Page II-9, paragraph 2. The direction of groundwater movement is seldom determined by the prevailing wind direction.

H Page II-9, paragraph 3. High transmissivity does not imply low storage capability. Clinker beds in the field often store large amounts of water.

I Page II-3, paragraph 3. Part of the major coulee draining to the Fast Fork is perennial.

J In conclusion, nothing in the document leads me to believe that the springs are not unusual or even unique to this area. I believe they are unusual, and if the department can deny this merely on the basis of conjecture, DSL is doing a grave injustice to the people of Montana. Mining will destroy the springs.

Sincerely,

Charles Andrews

Dr. Charles Andrews
Hydrologist

CA/ib

D After the DEIS was written, Westmoreland submitted more studies to the Department (Envirosphere, 1979; Botz, 1979a,b; Leaf, 1979). An independent study for the Department (Stiller, 1979) is summarized with relevant supporting data in the revised text.

E See revised text and additions to Table II-2. Additional reports and data are on file with the Department.

F The springs occur at least partially in response to discharge along the outcrop of a perched ground water unit, the overburden, in conjunction with significant contributions from a relatively small clinker area (see revised text), and direct precipitation recharge, all of which contribute to the ground water flow in the coulee. Irregular changes in coulee gradient, cross-sectional area of alluvial-colluvial fill, and occasional instances of less permeable sub-cropping units rising closer to the coulee surface, all create conditions which force the coulee underflow to the surface, thereby creating springs.

The analysis referred to which indicates that neither the density nor the quality of the springs are unusual is not "some memo from Westmoreland". The study is a report to Westmoreland from a consultant (Westech, 1977). The citation has been changed in the revised text to make this clear.

G It should read "downward." The correction has been made.

H The implication was, and the general case is, that small areas of clinker which drain freely typically do not store large amounts of ground water for late-season discharge. New data are available which contradict the general case--see revised text, chapter II, Hydrology.

I See revised text, chapter II, Hydrology.

J See response 12C.

LETTER 19

NORTHERN PLAINS RESOURCE COUNCIL

Main Office
419 Stapleton Bldg
Billings, Mt. 59101
(406) 248-1154

Field Office
P O Box 886
Glendive, Mt 59330
(406) 365-2525

October 12, 1979

Leo Berry, Jr.
Commissioner
Department of State Lands
1625 Eleventh Avenue
Helena, Montana 59601

Dear Commissioner Berry:

A Currently pending before the Department of State Lands is an application (no. 00068) for a five year mining and reclamation permit submitted by Westmoreland Resources. Based on a review of the draft EIS, memoranda, and correspondence prepared by the Deparment's Reclamation Division, it is evident that Westmoreland's application must be denied.

The various documents conclude that adverse hydrological impacts will result if Westmoreland conducts mining operations pursuant to the five year mining and reclamation permit. These adverse hydrological impacts will, in turn, prevent the area from being properly revegetated. §82-4-233(1)(a) MCA requires the revegetation of a mined area with a diverse vegetative cover capable of:

> "feeding and withstanding grazing pressure from a quantity and mixture of wildlife and livestock at least comparable to that which the land could have sustained prior to the operation;" (emphasis added).

Because the area cannot be legally revegetated, you have no choice but to deny application number

A The conclusions in the draft EIS have been revised using new hydrologic data. (See summary and revised chapter III.) No recommendation for granting or denying the permit is included in the final EIS, nor is a recommendation required under ARM 26-2.2 (18)-P290. Your concerns will be considered before a decision on the permit application is made.

Leo Berry, Jr.
October 12, 1979
page two

00068. §82-4-227(1) MCA states:

> "An application for a prospecting, stripmining, or underground-mining permit shall not be approved by the department if there is found on the basis of the information set forth in the application, an on-site inspection, and an evaluation of the operation by the department that the requirements of the part or rules will not be observed or that the proposed method of operation, backfilling, grading, subsidence stabilization, water control, highwall reduction, topsoiling, revegetation, or reclamation of the affected area cannot be carried out consistently with the purpose of this part." (emphasis added).

Revegetation as defined in §82-4-233(1)(a) MCA cannot be carried out if the permit is approved. Under such circumstances the Department has no choice but to deny the application.

NPRC is concerned that the integrity of the Montana Strip and Underground Mine Reclamation Act be maintained. An approval of application number 00068 would be an obvious repudiation of the Act. NPRC is prepared to take whatever actions are necessary to ensure that the unambiguous directives of the Act are met. Montana's reclamation law is strong only if properly administered; proper administration requires that application number 00068 be denied.

Sincerely yours,
W R Mackay
William R. Mackay, Jr.
Chairman, NPRC

cc. Don Crane

LETTER 20

NORTHERN PLAINS RESOURCE COUNCIL

Main Office
419 Stapleton Bldg
Billings, Mt 59101
(406) 248-1154

Field Office
P O Box 886
Glendive, Mt 59330
(406) 365-2525

October 15, 1979

Leo Berry Jr.
Commissioner
Department of State Lands
1625 Eleventh Avenue
Helena, Montana 59601

RE: Draft Environmental Impact Statement: Absaloka Mine
Permit Application no. 00068.

A Based on a review of the draft EIS, memoranda, and correspondence prepared by the Department of State Lands Reclamation Division, it is evident that this permit must be denied.

A See response 19A.

The proposed mining area is on the East Fork of Sarpy Creek-Sarpy Creek divide, with the mine breaking just over the divide and into the East Fork watershed. The mine will destroy the middle silt overburden aquifer which feeds most of the springs in the three coulees running north and east of the mine area in the direction of the East Fork of Sarpy Creek. Approximately ten springs will be affected by the mine.

The middle silt aquifer obtains its water from snowmelt and precipitation. The mine will be located in the heart of the aquifer recharge area, and will destroy between 40% to 60% of the recharge area.

Once this aquifer is destroyed by mining it cannot be reestablished. Consequently the springs fed by the aquifer will disappear; ultimately the vegetation will change, becoming less diverse and having decreased productivity. These adverse hydrological impacts will prevent the area from being properly revegetated.

§82-4-227(1) MCA states:

> "An application for a prospecting, stripmining, or underground-mining permit shall not be approved by the department if there is found on the basis of the information set forth in the application, an on-site inspection, and an evaluation of the operation by the department that the requirements of the part or rules will not be observed or that the proposed method of operation, backfilling, grading, subsidence, stabilization, water control, highwall reduction, topsoiling, revegetation, or reclamation of the affected area cannot be carried out consistently with the purpose of this part." (emphasis added).

Page 2.

Furthermore, §82-4-233(1)(a)MCA requires that the revegetation of a mined area with a diverse vegetative cover capable of:

> "feeding and withstanding grazing pressure
> from a quantity and mixture of wildlife
> and livestock at least comparable to that
> which the land could have sustained prior
> to the operation."

The area cannot be legally revegetated as defined in §82-4-233 (1)(a)MCA, and therefore the permit must be denied.

Northern Plains Resource Council is concerned that the integrity of the Montana Strip and Underground Mine Reclamation Act be maintained. An approval of Westmoreland's application number 00068 would be an obvious repudiation of the Act.

Montana'a reclamation law is strong only if properly administered; proper administration requires that application number 00068 be denied. Any other decision would be both arbitrary and capricious, and NPRC is prepared to take whatever actions are necessary to ensure that the unambiguous directives of the Act are met.

Respectfully submitted,

Russell Brown

Russell Brown
NPRC Staff

STEVEN J. PERLMUTTER
ATTORNEY AT LAW
ROOM 307
STEAMBOAT ANNEX
616 HELENA AVENUE
HELENA, MONTANA 59601
406/443-5653

October 15, 1979

Montana Department of State Lands
1625 Eleventh Avenue
Helena, Montana 59601

Dear Sir/Madam:

A This is to request a fifteen day extension of the comment period for comments on the Draft Environmental Impact Statement on the Proposed Mining and Reclamation Plan for Westmoreland Resources, Inc., Absoloka Mine, in Big Horn County, Montana.

A See letter 22.

This request is made on behalf of Friends of the Earth.

Thank you very much for your consideration of this request.

Sincerely,

Steven J. Perlmutter

LETTER 22

STEVEN J. PERLMUTTER
ATTORNEY AT LAW
ROOM 307
STEAMBOAT ANNEX
616 HELENA AVENUE
HELENA, MONTANA 59601
406/443-5653

October 22, 1979

Leo Berry, Jr., Commissioner
Department of State Lands
1625 Eleventh Avenue
Helena, Montana 59601

Dear Mr. Berry:

The following brief comments on the Draft Environmental Impact Statement on Westmoreland Resources' Absoloka Mine are submitted on behalf of Friends of the Earth as a supplement to comments submitted by Mr. Edward Dobson in his letter of October 19, 1979.

A p. I-8."The drainage system and sediment ponds are designed to control flow from a 10-year, 24-hour event." What results might be anticipated from an event of greater severity than a 10-year flood? It would appear that the probability of such an event is fairly high, especially during the potential 20-year mining period.

B p. III-8. Have the air quality effects on the P.S.D. Class I status of the Northern Cheyenne Reservation been considered? For example, what percent of the Reservation's allowable increment of TSP may be used by the twenty-year mining activity?

C p. VI-1. "Reclaimed soils would require specialized management for many decades..." Who will conduct such management? At what cost? What are the long-term provisions for assuring that such management efforts are maintained? What is the likelihood that such efforts will be successful?

D p. VIII-3. Regarding the review which will be required by the Department of Health and Environmental Sciences, it would be helpful to include some explicit input from DHES as to their assessment of potential air pollution impacts, conditions which they might impose on air pollutant discharge permits, monitoring and enforcement authority available to them, their experience regarding the effectiveness of proposed air pollution control devices, etc.

In general:

E It would be helpful to include an assessment of the success of past and ongoing reclamation revegetation efforts in the State, particularly on lands with similar climactic, soils, hydrologic and other relevant characteristics, and the department's evaluation of the likelihood and degree of success of reclamation revegetation on the proposed minesite.

A If a storm causes greater runoff to accumulate in the sediment ponds than the ponds are capable of containing, relatively sediment-free discharge would be decanted from the sediment pond surface and released down-coulee. The pond designs are submitted for 5 year mine plans, not 20 year plans. Pond containments for 10 year, 24 hour events are stipulated by Montana and Federal surface mining laws. The probability of this size event occurring at least once in a 5 year period is 41%.

B There is no reliable model for prediction of the impacts of increased mining on the PSD Class 1 status of the Northern Cheyenne Reservation. The mining-derived particulate is large enough that most, if not all would fall out close to the mine site.

C There are no legal provisions for management past bond release. Such management is expected to be a matter of use limits rather than costs. Specialized management of successfully reclaimed lands can be expected to result in greater economic benefits to the user. See also response 22E.

D The air quality and climate sections were written by a DHES environmental engineer in Billings.

E For numerous reasons, the likelihood of successful long term reclamation cannot be precisely determined. It will require an extended period of time for soil characteristics to re-develop. These characteristics include reduction of density, increases in soil organic matter, development of structure and pore continuity, and reestablishment of soil hydrologic properties (increased infiltration and percolation rates). Poor management practices (overgrazing) will reduce or reverse development of soils capable of being incorporated into normal land use patterns. With very little experience and experimental data, it is impossible to predict the degree to which special management will be required, or for what period of time. In addition, there will be differences from place to place based on soil texture, minerology, initial condition, salvage and storage techniques, slope, revegetation parameters, climatic regime, and probably other factors. At this time, one can only be aware of the need for long term care in management; limits on use remain to be determined. Legal responsibility for this does not exist. Finally, this situation is not unique to this mine, but is common to all reclaimed lands in the semiarid west.

Leo Berry
October 22, 1979
psge 2

F It would also be helpful to include a summary of the enforcement mechanisms available to the department and to other local, state and federal agencies to insure compliance with regulations and effective application of mitigating measures. This summary should include an assessment of the adequacy of the staff and resources available to carry out such enforcement activities, a history of the effectiveness of enforcement in the past, and an assessment of the likelihood of undetected violations.

G Finally, I would like to re-emphasize the need to circulate for comment, possibly as a supplemental draft EIS, any additional data or information which you receive from Westmoreland in response to Mr Hayden's letter of August 10, 1979 (Appendix A of the DEIS.)

Thank you for this opportunity to comment.

Sincerely,

Steven J. Perlmutter

F The Department is required to maintain a staff adequate to enforce the laws and rules regarding surface coal mining. Section 82-4-205(5) requires the Department to "make investigations and inspections necessary to insure compliance with this part." Should the Department fail to perform this duty, it is subject to a mandsmus action pursuant to Section 82-4-252.

G See response 12B.

LETTER 23

Sarpy Route
Hysham, MT 59038
October 22, 1979

Leo Berry, Jr., Commissioner
Department of State Lands
Helena, MT 59601

Dear Mr. Berry:

Thank you for sending me a copy of the Westmoreland impact statement which I received on October 20, 1979. Here are my comments for the record.

A There is so much water coming from springs 223 and 263 next to the new county road that water was taken from them in large quantities for construction of the new road, yet there is no rate of flow given for these or most of the other springs that would be affected by mining in the 5 year plan. Furthermore, the Sarpy springs are running strong right now, as late in October as it is, which shows how these springs run year around. In fact, East Fork of Sarpy is running maybe between 60 and 100 gallons per minute over a beaver dam on the Cady place. Enclosed is a picture we took on October 21, 1979, at sp. 223 res.

B There are about 20 new monitor wells on the Cady place. What is their purpose? Can you put a map along with their description in the final EIS?

C If springs are replaced with wells drilled to the sub-Robinson who will pay expenses for their upkeep when Westmoreland is gone? The springs are free. Is any of the sub-Robinson water fit for people to drink? I don't know of any. If not, doesn't the existing water come under "sole source" protection?

D The draft EIS says mining would not interfere with the development of other minerals (page III-3). What about shale gravel? This is a mineral and was used on the new county road. We used to get paid by the county for use of our clinker shale gravel, but Westmoreland had the new county road built in several places through the burn on land where we reserved the minerals. Our minerals were used in building the new road and/or have been otherwise disposed of without compensation. If this impact statement had come before the building of the new road it could have taken care of this.

E Wouldn't it save gas if Westmoreland ran a bus from town out to the mine for shift changes?

Sincerely,

Mrs. J. T. Redding

Mrs. J. T. Redding

F P.S. Westmoreland's blasting is already knocking down the sandrocks. Can't you stop that? My grandson, Todd Rall, has found dozens of arrowheads and chippings around these rocks, so they must have been important to the early Indians.

A New data on rates of spring flow obtained after the DEIS was written are included in the revised Table II-2.

B Westmoreland has installed the observation wells as part of its ongoing ground water monitoring program. They are used to test the East Fork alluvial aquifier and to determine the amount of ground water moving through the East Fork alluvium in this vicinity.

C See responses 12G and 12BB. Ground water from the sub-Robinson is probably acceptable for stock use, although domestic use may be ill-advised if better sources are available. The Department may require Westmoreland to replace water supplies destroyed by mining. Presumably the postmining landowner would pay for operations related to maintaining the water resource. However, replacement water supplies probably will be unnecessary.

D The use of gravel by Westmoreland is a property issue and does not come under the purview of the Department.

E The use of a bus would probably reduce gas consumption, hut this does not come under purview of the Department.

F See response 12S.

LETTER 24

LAW OFFICES

BRUCE J. TERRIS
1526 18TH STREET, N.W.
WASHINGTON, D.C. 20036

(202) 332-1882

BRUCE J. TERRIS
ELEANOR M. GRANGER
PHILIP G. SUNDERLAND
EDWARD H. COMER
TARA HARVEY
DELMAR KARLEN, JR.
KAREN H. EDGECOMBE
NORMAN L. DEAN

October 5, 1979

Leo Berry, Jr.
Commissioner
Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Commissioner Berry:

A We intend to prepare and submit comments on the draft environmental impact statement on Westmoreland Resources, Inc., Absaloka Mine on behalf of Friends of the Earth. However, we received a copy of the statement only last Wednesday, October 3, 1979, and anticipate having some difficulty getting our comments to you in Montana by the October 19 deadline. We therefore request a seven (7) day extension on behalf of all the out-of-state individuals who received copies of the DEIS at the request of Ed Dobson. Our comments would be submitted on or before October 26, 1979.

We hope our request will not pose any problems. Many thinks for your help with this.

Sincerely,

Tara Harvey

Tara Harvey

TH/es

A See letter 25.

LETTER 25

LAW OFFICES
BRUCE J. TERRIS
1528 18TH STREET, N.W.
WASHINGTON, D.C. 20036

(202) 332-1882

BRUCE J. TERRIS
ELEANOR M. GRANGER
PHILIP G. SUNDERLAND
EDWARD H. COMER
TARA HARVEY
DELMAR KARLEN, JR.
KAREN H. EDGECOMBE
NORMAN L. DEAN

October 18, 1979

Leo Berry, Jr.
Commissioner
Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Mr. Berry:

Enclosed please find comments submitted on behalf of Friends of the Earth on the Draft Environmental Impact Statement on the Proposed Mining and Reclamation Plan for Westmoreland Resources' Absaloka Mine.

Sincerely,

Tara Harvey

Bruce J. Terris
Tara Harvey

Attorneys for Friends of the
Earth, Inc.

BJT/TH/es
Enclosure

COMMENTS OF FRIENDS OF THE EARTH ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT ON THE PROPOSED MINING AND RECLAMATION PLAN FOR WESTMORELAND RESOURCES, INC. ABSALOKA MINE

These comments on the Draft Environmental Impact Statement on the Proposed Mining and Reclamation Plan for Westmoreland Resources' Absaloka Mine are submitted to the Department of State Lands on behalf of Friends of the Earth, Inc. (FOE). FOE is a non-profit environmental membership organization with long-standing and well-known concerns regarding the environmental problems and issues associated with the surface mining operation of Westmoreland Resources in Big Horn County, Montana.

FOE submits that the Draft Environmental Impact Statement on Westmoreland's Proposed Mining Plan for its Absaloka Mine is seriously inadequate. FOE is submitting other comments setting forth additional serious deficiencies in the draft environmental impact statement. We will address in these comments the fact that, as pointed out by the Department of State Lands Reclamation Division in Appendix A of the statement, insufficient data is available with respect to four important issues.

A First, the Department of State Lands has asked the company for additional data on its plans to meet the Montana revegation performance standards. The Department is particularly interested in the effects of the proposed mining on spring number 276 and its dependent riparian vegation and is unable to determine at this point whether the company will be able to meet the revegation standards.

A The revised hydrology section in chapter II, and the revised hydrology, vegetation, and wildlife sections in chapter III, incorporate the additional data requested by the Department. See also response 12B.

Second, there is insufficient data in Westmoreland's application and therefore in the DEIS regarding whether the proposed mining operation will adversely affect "the use and fundamental character of neighboring land having special, exceptional, critical or unique characteristics." DEIS, XI-3. The Department is concerned about the upper portions of three coulees near the proposed permit area which make the area ecologically fragile and potentially non-reclaimable.

Third, additional data is requested on Westmoreland's plans with respect to minimizing disturbance to the prevailing hydrologic balance of the area.

Finally, supplemental data is requested on proposed restoration of the area to premining groundwater recharge capacity. The Department is particularly concerned that, since proposed mining will remove between 40 and 60 percent of the effective recharge area of the middle siltstone aquifer, the mining operation may eliminate nearly all of the aquifer's recharge ability. As a result, discharge of water from the aquifer would be significantly lowered and may even cease in places.

The Department's Reclamation Division clearly believes that Westmoreland's application contains insufficient information on these critical points. It has, in fact, ceased its evaluation of the application until the problems outlined are addressed by the Company and additional data is submitted. DEIS, XI-5.

It is our position that the additional data requested by the Department is important and must be analyzed before the Department makes a decision on Westmoreland's application. Moreover, we submit that once the data is received by the Department, it must circulate such additional information in a supplemental draft environmental impact statement on which agencies and the public would have an opportunity to comment.

The Montana Environmental Impact Statement Regulations (Montana State Department of Health and Environmental Sciences Regulations 16-2.2(2)-P2000, et seq.) state that the Department shall prepare a draft environmental impact statement which shall include (16-2.2(2)-P2040):

> (c) a description of the impacts on the human environment of the proposed action. The description shall include:
>
> * * *
>
> (ii) primary, secondary, and cumulative impacts;
>
> * * *
>
> (iv) irreversible and irretrievable commitments of environmental resources, including land, air, water and energy.

According to the Montana regulations, the draft statement shall be circulated to state and federal agencies and to the public.

Similarly, the most recent regulations promulgated by the Council on Environmental Quality implementing the National Environmental Policy Act (NEPA) state that (§1502.9, 43 Fed. Reg. 25237):

> At the time the draft statement is prepared it must fulfill and satisfy to the fullest extent possible the requirements established for final statements * * *. If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion.

It is our position that the draft statement now being circulated is inadequate. The Department must agree with our position since its own Reclamation Division has stated that it needs more information in order to evaluate adequately the impacts of the proposed mining on the environment and ecology of the area. The public is even more clearly unable to evaluate the impacts since it obviously has far less resources than the Department to gather its own information. We submit that the public, just as much as the Department, is entitled to evaluate and comment on the additional data submitted by Westmoreland Resources before the Department prepares a final impact statement and makes a decision on the application.

We therefore request that the Department, upon receiving the additional information requested from Westmoreland Resources, include such data in a supplemental draft environmental impact statement and circulate it to state and federal agencies and the public. The existing draft statement is inadequate and until a supplemental statement is issued, the Department has not complied with the Montana Environmental Policy Act.

Submitted by,

Tara Harvey

BRUCE J. TERRIS
TARA HARVEY
1526 18th Street, N.W.
Washington, D.C. 20036
(202) 332-1882

Attorneys for Friend of the Earth, Inc.

October 18, 1979

WATER RESOURCES CENTER
Desert Research Institute — University of Nevada System

4582 Maryland Parkway
Las Vegas, Nevada 89109
(702) 736-2293

October 19, 1979

Mr. Leo Berry, Jr.
Commissioner
Department of State Lands
Capital Station
Helena, Montana 59601

Dear Mr. Berry:

A I have reviewed the draft EIS on the Absaloka Mine in Big Horn County, Montana and I would like to express my support of your evaluation. I am not aware of any other coal mining operations in the Powder River Basin which are actively mining in a well defined recharge area. Because of this, a careful evaluation of the premining hydrologic setting is warranted. I have three areas of comment:

B 1) Uniqueness of Springs: The Absaloka Mine is located in a unique region of southeastern Montana and the Powder River Basin. The highly dissected country which includes the Sarpy Creek, Northern Cheyenne Reservation and Ashland Forest areas is atypical of the rolling plains of the Powder River Basin. These area receive more annual precipitation than the surrounding lower countryside. The higher precipitation combined with the geology of the Tongue River Member has resulted in development of complex hydrogeologic systems. The occurrence and number of springs in the proposed mine area is similar to those seen associated with the higher areas of the Northern Cheyenne Reservation. However, the occurrence of these spring areas are unique when compared to the southeastern Montana region.

C 2) Measurement of Recharge: In the report it is stated that 40% of the recharge area will be destroyed. I would like to know what efforts have been made to quantify natural recharge and predict post mining recharge. It could be that post mining recharge will be greater than, equal to or less than pre-mining conditions. This will have a significant influence

A Comment noted.

B See response 12C.

C There are insufficient long term data to reliably estimate premining recharge rates to the undisturbed overburden, although Westmoreland has recently supplied the Department with the results of infiltration studies on both undisturhed and reclaimed soils, in addition to moisture content analyses of reclaimed spoils to varying depths. Current indications are that initial postmining infiltration and recharge rates are significantly less than in undisturbed conditions, although some evidence suggests that these rates begin to recover within several years following reclamation. Thus, some recharge apears to be taking place, although it is much too soon to be more specific.

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on predicting the impact on the post mining system. I would like to see as part of your analyses a materials balance model of the pre-mining and post mining inputs and outputs of the hydrologic system.

D 3) Water Quality Impacts: This point is actually related to point 2. Best approximations of post mining water quality changes should be attempted after reviewing saturation paste-leaching test data and possible ranges of recharge to the spoil.

E In closing, I would highly recommend that any materials made available to you by the company in response to the letter of Mr. Hayden be made available for public comment before a final statement is prepared.

Sincerely,

William W Woessner

William W. Woessner
Assistant Research Professor

WWW:mp

Insufficient data and resources are available to develop and quantify the requested model to a satisfactory degree of reliability. It is also beyond the scope of the present analysis. However, a water balance study on the major coulee system north of the proposed mining area (Leaf, 1979) indicates that water surpluses will exist in the major coulee and all subbasins following mining. See revised text for further summary of the predicted postmining system.

D With one exception, limited water quality analyses made to date of ground water in reclaimed spoils suggest that postmining water quality in reclaimed spoils is within the range found in undisturbed systems in the Westmoreland area. The exception, a very high reading of 5,820 mg/L total dissolved solids, may be due to faulty sampling or it may indicate potential future problems. Current and planned water quality monitoring by Westmoreland and the Department should be adequate to keep abreast of the situation.

E See response 12B.

LETTER 27

WESTMORELAND RESOURCES, INC.
2929 3rd Avenue North, Suite 330, P.O. Box 1883, Billings, Montana 59103 (406) 248-7803

October 16, 1979

Mr. Leo Berry, Jr.
Commissioner
State of Montana
Department of State Lands
Helena, MT 59601

RE: Comments of Westmoreland Resources, Inc.
to Draft Environmental Impact Statement
of September 17, 1979 on the Absaloka Mine
5-Year Permit Application

Dear Leo:

A We have received the September 14, 1979 draft Environmental Impact Statement (EIS) on the proposed mining and reclamation plan for Westmoreland Resources, Inc. Absaloka Mine in Big Horn County, Montana. While we do not agree with all of the contents of the EIS, we find it to be well organized and written. Our primary objection to the EIS is its reoccuring projection that the vegetation and wildlife found in the coulees located north and northeast of the proposed mining plan will suffer significantly as a result of the five-year mining plan. As you know, we have submitted materials to your office under cover letter of October 9, 1979 which demonstrate that the mining impact on hydrology as it affects the off-site area is a good deal less significant than is described in the EIS. As a result, we do not agree that the springs off the mining area in the coulees will be materially affected, and we do not agree that there will be any significant loss in either coulee vegetation or coulee widlife and grazing.

A See revised text, chapters II and III.

On the following pages are specific comments on the draft EIS. Since the issues of hydrology, vegetation and wildlife have been addressed in our submittal of October 9, 1979, our comments on the EIS summarize only the relevant conclusions contained in that submittal for the sake of brevity.

B Page 1-1
Para. 1
Reference is made to an application filed by Westmoreland Resources, Inc. Nowhere is there a copy of the application map for the five-year mining plan; only the federally approved 20-year plan is shown.

B See figures II-2 and II-6 in the draft EIS.

C Page 1-9
Figure 1-2
A revised final contour map has been submitted and amended into the application.

C The revised contour map has not been approved by the Department. See chapter III, Geology, paragraph 2.

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D	Page II-2 Table II-1	This table is confusing. Data are in percent, but there is no indication as to percent of what.	D This table compares total volumes of overburden and interburden to the respective volumes affected by the parameters listed in the left hand column. For example, 1 percent of the total volume of overburden has SAR (Sodium Absorption Ratio) values in excess of the State guideline (maximum 12) whereas 91 percent of interburden volume is affected. This allows a direct comparison of the relative suitability of these materials for near surface placement.
E	Page II-11 Para. 1	All springs except spring 6 have dissolved solids and/or sulfate concentrations that exceed recommended limits for potability. Spring 6 is too small to serve as a useful supply of potable water.	E Noted.
F	Page II-3 B.1. Para. 2	There is some confusion here. Tract III drains toward the East Fork of Sarpy Creek on the northeast and Sarpy Creek on the southwest. The Middle Fork is a tributary to Sarpy Creek, and crosses the southern portion of Tract III.	F Current mining operations are disturbing both the headwaters of Middle Fork Sarpy Creek, which drains the southern portion of Tract III, as well as minor tributaries to mainstem Sarpy Creek, which drain westward from Tract III.
G	Page II-4 Para. 1	Reference to dense growth of vegetation in the coulee bottoms is not placed in perspective. Such vegetative growth is typical of coulee bottoms in the area, and these coulees have been shown to have considerably less thicket vegetation than many other coulees in the area (Envirosphere, p. 25).	G Noted.
H	Page II-9 Para. 2	In the description of the overburden as an aquifer, there is no reference to the impermeability of these beds in the East Fork drainage. Recent aquifer testing performed by the Hydrometrics shows that permeability values are in the range of less than 1 to 2.5 gal/day/ft^2 in the overburden middle silt. Permeability values of this magnitude are far below the value that would be expected for an aquifer capable of supplying water to a typical well (Envirosphere, p. 11).	H See revised hydrology text.
I	Page II-9 Para. 3	A statement is made that the clinker "does not readily store ground water in large amounts." We are not aware of any data which would support this statement, and there is reason to believe that the clinker does provide storage (Envirosphere, p. 15).	I See revised text, chapter II, Hydrology.
J	P. II-19	There is a column labeled "Potential increase" in available topsoil "not included in the company proposal." There is no indication in the text as to the basis for this calculation. The mining plan indicates that topsoil will be salvaged to the average profile depth as described for the mapping unit or to bedrock, and that all available topsoil will be salvaged.	J The column entitled "potential increase" measures the completeness of the company's soil salvage proposal. In this case, potential increases amount to a maximum of only 3 percent. By this measure, the company's soil salvage proposals are essentially complete. The differences stem from the lack of definable bedrock in the Alice series. This increment would provide 27.62 acre-feet of additional C horizon material. The remaining 4.28 acre feet would be obtained from full salvage of the Thedalund soils in the Thedalund Wibaux complex (736D) to a depth of 20 inches.
K	Page II-42 Para. 1	The assertion that the mining area is capable of supporting 0.38 AUM's/acre is highly questionable. This comes from records in DSL which indicate a grazing capacity of 0.38 AUM's/acre for Section 36, T1N R37E. There is no survey data to support this calculation. Range surveys performed by Westmoreland Resources, Inc. personnel indicate an average grazing capacity in the mining area of about 0.25 AUM's/acre, which is consistent with the lands surrounding the mining area.	K Recent analyses of data on file with the Department indicate a grazing capacity of about 0.30 AUMs/acre--still above average.

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L	Page III-1 Geology	Since a revised contour map was submitted, the discussion relating to "long, straight slopes" etc. and the associated potential erosion problems is not applicable. As was explained in the cover letter to DSL, the final contour map is engineered, based on available spoil quantities, to describe the drainage system and slope angles after mining. It is not feasible to precisely engineer slope designs, etc. in such a long term plan. Slopes will be constructed with a complex configuration as described, and any "convex drops" to haul roads will be corrected when haul roads are topsoiled in the final reclamation plan.	L The reasons for this discussion are explained in chapter III, Geology, paragraph 2.
M	Page III-4 B. Hydrology	Based on reviews of the data by Envirosphere, Maxwell K. Botz, P.E. and Charles F. Leaf, P.E., hydrology impacts as stated in the EIS are open to question. Reference is made to those reports included in our submittal to you of October 9, 1979. In summary, effects of the 5-year mining plan on springs other than spring 276 will be minor or undetectable. Drawdown effects from the mine pit will be extremely limited due to the low permeability and limited thickness of the middle silt. Springs in the lower part of the drainage receive significant recharge from sources other than the middle silt, specifically, the Rosebud-McKay clinker. Even in a worst case analysis, there will be sufficient water at all spring locations to support riparian vegetation. Hence, vegetation and wildlife will not be affected and off-site impacts will be minimal to undetectable. We believe that the effects of mining under the 20-year plan will not be significantly greater, and that they certainly will not be as severe as indicated in the DES.	M-O See revised text, chapters II and III, Hydrology.
N	Page III-4 B.1. Para. 1	It is stated that "loss of these springs would be significant because the overall use of the coulee would thereby be limited." As pointed out above, springs other than No. 276 will not be lost under the 5-year plan. Furthermore, loss of all of the springs under the 20-year plan would not affect the overall grazing land use since water can be provided for livestock by drilling wells.	
O	Page III-6 2.a. Para. 2	Only a small portion of the "ground water supplying most of the springs" originates in the area to be mined, since the entire watershed above each spring contributes recharge. Lower portions of the watershed probably are more important due to snow accumulation and run-in from the ridge. As pointed out previously and calculated by Envirosphere (p. 17) and Botz (10/7/79 p. 4), drawdown effects will be minimal and will not affect spring flow.	
P	Page III-7 Para 2.	None of the three water wells mentioned is in use.	P Comment noted.
Q	Para. III-7 b. Para. 1	We do not believe that the 20-year plan will result in significantly greater impacts as described in this	Q Because there are numerous springs within the potentially affected area of the 20 year mine plan, the possibility exists that disruption of a selected 2 1/2 percent of the drainage basin could result in impacts to the mainstem out of proportion to the impacted area. In the absence of data to refute this, the possibility still exists.

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paragraph. As indicated above, the pit drawdown will not occur, and it is difficult to conceive a 2.5 percent flow reduction as "a measurable and significant interruption." A flow reduction of 2.5 percent is below the limit of detection by conventional gaging techniques; the conventional level of significance in statistical testing is 5%.

R Page III-8 Para. 1 — The assertion that ground water developing in the spoils would "eventually re-enter the ground water bearing units to the north and east" is rather vague. Presumably, this refers to the Robinson and Rosebud-McKay coals. The coals have very low permeability, and it seems more likely the water level would rise and discharge through adjacent unmined overburden or clinker, or emerge as spring flow where mined and unmined lands meet.

R See revised text, chapter III, Hydrology.

S Page III-12 Soils — Impacts related to "long straight slopes" are not applicable. Please see the comments on Page III-1.

S See response 27C.

T Page III-14 Vegetation — There is considerable discussion in this section centered on effects on offsite riparian vegetation. Based on even a worst case hydrologic analysis (Leaf, p. 1), sufficient water will be available for riparian vegetation, and effects will be minimal to nonexistent. There is no basis for the prediction that post-mining productivity is projected to be reduced by 10 to 20 percent.

T See revised chapter III and response 12EE.

U Page III-15 — As stated above, impacts on riparian vegetation, if any, will be minimal. In the area north and east of the 5-year mining plan, there are about 5 acres of the wetland type, 5 acres of shrub thickets and 30 acres of snowberry-rose vegetation. The total grazing capacity of the wetland type is about 12 AUM's. Shrub thickets are not considered to contribute to grazing capacity by the SCS. Since the shrub types are not necessarily dependent on a high water table, we are confident that these types can be reclaimed through proper topographic design and other measures to concentrate moisture and reduce evaporation.

U See revised chapter III, Vegetation.

V Page III-16 Wildlife — Impacts on wildlife are related directly to vegetation impacts described in the previous section. Since off-site effects on vegetation probably will be undetectable, wildlife impacts also will be insignificant.

V See revised chapter III, Wildlife.

W Page III-29 — There currently are no water sources for livestock in or near the 5-year mining plan boundary; therefore cattle now must walk at least ¼ mile to water.

W The discussion referred to the springs outside of the 5 year permit area. See revised chapter III.

X Page III-30 — A projected reduction in rangeland productivity of "up to 44 percent" is without substantiation. As previously pointed out in the comment on page II-42, productivity on Tract III is typical of the area, or about 0.25 AUM's/

X See revised text, chapter III, Land Use.

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acre. Also, please refer to the comment on page III-14, where a reduction of 10-20 percent is postulated. Since productivity is a function of climate and soil, it is likely that post-mining productivity will be comparable to pre-mining, and may even be greater due to increased moisture holding capacity in the root zone.

Y Page IV-1
Para. 3

Since the Westmoreland mining plan is in compliance with existing laws and regulations, additional mitigating measures are not necessary.

Y This decision remains to be made by the Department.

Z Page V-1

Adverse impacts related to reduced spring flow, off-site effects on riparian vegetation, and consequent effects on wildlife are not applicable for reasons already discussed. Also, discussion of "geomorphically unstable slopes" is inapplicable.

Z The discussion of geomorphically unstable slopes still applies unless Westmoreland formally commits itself to reclaiming slopes to a complex morphology, or unless the Department stipulates that such slopes will be used.

AA Page VIII-1
Para. 3

Since a new mine plan outside the approved 20-year plan area would undoubtedly require a Federal EIS, approval would require a minimum of 2-4 years including preparation time by Westmoreland, during which time royalties to the Crow Tribe would cease.

AA Noted.

BB Page VIII-3

Westmoreland's facilities are currently permitted by the Air Quality Bureau.

BB Montana Air Quality Rules, Section 16-2.14(1)-S1415, state that: "the owner or operator of an existing source or stack which was not in existence on November .23, 1968, shall apply for an air quality permit on or before January 1, 1981."

CC Page VIII-8
Para. 5

The proposal to require direct haul of "A" horizon topsoil is complicated by existing stockpiles in the path of mine operations, which must be used because rehandling of topsoil before placing it on recontoured spoils is not permitted. Westmoreland concurs with the desirability of such a system, but as pointed out, there are some serious logistical problems.

CC Noted.

APPENDIX

DD P. XI-2-5

Westmoreland has responded to this letter from Brace Hayden; a copy is attached.

DD The Department's Reclamation Division will respond to Westmoreland's letter to Brace Hayden. The concerns raised in that letter have been addressed in previous responses.

EE P. XI-6-10

As previously discussed in these comments, hydrologic impacts projected by Westmoreland and its consultants differ substantially from those projected in these memos from David Stiller and Jim Osiensky.

EE See revised text.

FF Page XI-7

Mr. Stiller suggested that Westmoreland may have been requested "at least two years ago to accurately quantify ground water flow in the East Fork, as well as contributing ground water flow from coulees draining Tract III." Such data were not requested formally, although the subject was discussed in 1977 during review of the 20-year mining plan EIS. Approval of the 20-year mining plan required

FF Noted.

Westmoreland to "monitor on a continuous basis the quantity and quality of ground and surface water in the creek and the hydrology of the East Sarpy Basin." Westmoreland met with U.S.G.S. several times during the fall of 1977 in an attempt to develop a monitoring program. Implementation of OSM's Interim Program required substantial revision, and a program was finally approved in July, 1978. Personnel of the Department of State Lands gave verbal approval but written approval was not received. Westmoreland began drilling new wells in September, 1978, pursuant to the approved plan; drilling was completed in the summer of 1979. Surface gaging stations are scheduled for completion in the fall of 1979, which will complete installation of the system. The approved plan does not include ground water contributions from Tract III coulees to the East Fork, and this information has never been requested.

GG Uncollected 1978 data is not relevant to the analysis. The only uncollected data were water level measurements in observation wells; these were taken in July, August and September to continue the long term data base. Spring flow measurements began in August, 1979. Earlier implementation was frustrated by the trucker's boycott, which delayed delivery of steel sheet piling.

HH Westmoreland feels that implementation of the hydrologic monitoring program has progressed satisfactorily from the time of approval, despite numerous unforeseen problems. A program of this magnitude requires implementation over a reasonable time period.

PP. XI-13-15 II We have reviewed the memo from Dick Juntunen and we have a number of comments. First, the assertion that ten or more springs will dry up is without validity. There is very little "marsh" habitat in the area being described. A marsh is an emergent plant community typically dominated by cattail and bulrush, in a situation where water is present through all or more of the growing season. Mr. Juntunen is referring to sedge communities typical of inundation through one-half of the growing season or less. These are heavily utilized by cattle, and provide very little cover.

The Envirosphere survey of the coulee thicket vegetation indicated a general absence of closed canopy and relatively little heavy undergrowth relative to other coulees in the area. The heavy undergrowth around springs 9 and 10 is predominantly thistle, scarcely a species considered of high productivity to wildlife or desirable as a range component. Wet land vegetation was generally grazed to

GG Uncollected 1978 water level measurements in observation wells may have allowed a better estimate of annual recharge to the overburden unit. Thus, its absence is regretable in that the analysis of the hydrologic system could have been better quantified.

HH Noted.

II These comments concern a memo from Dick Juntunen of the Department's Reclamation Division and reflect different professional interpretations of the data. The revised analysis in chapter III, Wildlife, takes into account the additional data submitted by Westmoreland.

water level rendering it valueless as wildlife cover or food and the "substantial" ponds are all far too small to support waterbird populations.

Springs 5 and 12 are both located south of the relocated county road and have not been "obliterated".

Some species of songbirds may be more frequent around the springs, but it is doubtful if most of them are dependent on the presence of a spring. Doves may travel miles to water daily while woodpeckers and kingbirds probably don't normally require free water.

Since the abundance of amphibians, i.e. frogs, is doubtless a function of water availability which varies from year to year, it is doubtful that they represent a significant prey base for any species in the coulee. The valleys of Sarpy Creek and East Fork Sarpy Creek likely hold stable populations of frogs, providing a base for invasion of adjacent habitats which may be unstable due to annual variations in precipitation. Habitat for amphibians will be increased by establishment of ponds for sediment control.

There is no "dense marsh type vegetation" in the coulee capable of providing adequate cover for successful waterfowl nesting and brood rearing. All waterfowl habitat suitable for such activities is limited to the major drainages of the area (i.e. Sarpy Creek and East Fork).

The value of thicket cover in coulee 12 to turkeys is marginal. Ponderosa pine thickets probably offer the best escape cover.

Utilization of the area by white-tailed deer is well documented; however, we question attributing bedding sites to white-tails. Mule deer are common in this area as well. Pete Martin's 1975 study of Sarpy Creek, was of very low intensity (by aircraft), and he reported only 5 observations of white-tails, hardly enough to form any conclusions. We do not understand reliance on the meager 1975 data. More current data (1978) clearly indicate a more general distribution of white-tails. The implication that the statement "the upland drainages of Sarpy Creek provide dense vegetation utilized (by whitetailed deer) for loafing, fawn rearing and escape cover" specifically addresses the upper drainage areas of springs number 9 and 10 and is misleading. It is certainly evident that white-tailed deer disperse from the lowlands after the winter but there is no evidence that they concentrate in the vicinity of springs 9 and 10 or that these springs provide better cover than other coulees in the Sarpy Creek drainage. In fact, the Envirosphere data seems to indicate that other coulees provide denser, more abundant cover.

The assertion that the "loss of present surface and subsurface water in the drainages, as it now exists, will, without a doubt, eliminate certain species in this area" is a rather broad statement. Even more encompassing is the assertion, that "This represents extreme jeopardy to these species." In no case is a "species" in danger. Impacts on populations will be directly proportional to habitat disruption by mining within the permit area. Since the habitat in this area, both on- and off-site, is typical of coulees in the general area, it is doubtful that populations of wildlife in the upper Sarpy Creek drainage would be affected even by mining the entire area. If other suitable habitats are occupied, population reductions in the overall sense would likely be undetectable. If other suitable habitats are not occupied, then affected animals would simply move to other areas.

In surveying wildlife habitat characteristics of a number of coulees in the area, Envirosphere found that the coulee system north and east of the mine plan area was not exceptional either in the occurrence of wet land sedge or bottom thicket communities. An examination of the spring inventory maps included with the Dames & Moore Hydrology Report (Exhibit I-2 of the Mining Plan) shows that springs occur generally over the area. Clusters of springs similar to that in the area north and east of the 5-year plan occur in several areas of Tract II, in the Horse Creek drainage, Cottonwood Creek, McKurdy Draw, and several other areas. Since Tract III was the most intensively surveyed area, it is likely that many additional springs are present in other areas. Hence, such spring occurrence is by no means unusual in the general area.

To suggest that the specific area under study "may contain ecological importance for some species" and that "effects associated with spring loss could have a system-wide (Sarpy Area) impact" reflects a lack of familiarity with the general area, and the formation of conclusions based on information which is extremely limited in scope.

Thank you for the opportunity to comment on this draft EIS. If you would like to discuss these comments, please do not hestate to contact me.

My Best Regards,

Dave Simpson
David W. Simpson
Environmental Administrator

dlm

WESTMORELAND RESOURCES, INC.

2929 3rd Avenue North, Suite 330, P.O. Box 1883, Billings, Montana 59103 (406) 248-7803

November 7, 1979

Leo Berry, Jr., Commissioner
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Leo:

We would like to thank the Department for forwarding comments on the Draft EIS covering the Westmoreland 5-year mining plan. We have reviewed all of these comment letters, and we feel compelled to respond to a number of points which have been raised. Specifically, the hydrologic analysis presented in the EIS has stimulated a number of comments which reflect a certain degree of confusion regarding the nature of the hydrologic system. It is not our intent to comment specifically on each point raised in every comment letter. Many of the comments have no relationship to the EIS and the application under consideration, and we are confident that DSL can respond to the majority of the relevant comments without our assistance. Since hydrology seems to be the central issue, however, we would like to offer responses to those comments which touch on this area of concern.We have also responded to several letters which raise issues of a legal nature.

Response to Comments of Dr. Charles Andrews, Hydrologist Northern Cheyenne Research Project

Dr. Andrews states that he has walked the two coulees in the area which drain toward the East Fork. Westmoreland was not aware of his examination of the area. Dr. Andrews states that the springs are "unusual", but he gives no comparisons with other areas to state why they are unusual, other than to say the setting is "different." Rather than reiterate the conclusions of Envirosphere, Max Botz and Charles F. Leaf, we suggest that Dr. Andrews be supplied with copies of these reports so that he will have all of the available information.

Dr. Andrews states that "part of the major coulee draining to the East Fork is perennial." Presumably, this is based on his September, 1979 observation. We believe that this is a function of enhanced recharge resulting from heavy snowfall during the last two winters, and particularly, over 22 inches of precipitation during 1978. Vegetation in the coulee bottoms is typical of intermittent rather than perennial flow.

Response to Comments of William W. Woessner, Assistant Research Professor Water Resources Center, Desert Research Institute, University of Nevada System

It is our recollection that Dr. Woessner was previously associated with the Northern Cheyenne Research Project, and therefore, he is familiar with this portion of the Powder River Basin. He does not state if he has visited the Sarpy area. We concur with his suggestion that the occurrence and number of springs is similar to that of the Northern Cheyenne Reservation and Ashland Forest areas. Mention is not made of the eastern portion of the Crow Reservation, which is similar geologically and topographically. This is a large area encompassing many townships, and to term it "unique" seems to be a misuse of the word.

We feel that Dr. Woessner's comments regarding recharge and DSL's evaluation of hydrologic impacts can be best addressed by sending him copies of the response letter and hydrologic studies recently submitted by Westmoreland. For an evaluation of saturated paste leaching data, please refer to Exhibit I-14 of the Westmoreland Mining Plan.

Comments of Edward M. Dobson, Northern Great Plains Representative Friends of the Earth

Mr. Dobson's comment letter is extremely diverse, and we will focus only on those comments which have some relevance to the hydrology and related issues.

Chapter I

A. The question of uniqueness of this coulee system or the East Fork drainage in general is refuted by the comments of Drs. Andrews and Woessner, as well as the report prepared by Max Botz included as Exhibit I-16 of the Mining Plan. Reference is also made to the biological assessment of Envirosphere, which covered some 300 square miles, and indicated that this coulee system is by no means unusual in the area.

E. With the exception of Spring 276, which is not developed, TDS levels in all of the springs exceed recommendations for potable water.

Chapter II

A.1. The occurrence of springs "above and below" reaches which do not have sustained flow in any season is not a unique situation. Springs occur primarily in conjunction with dissection through shale intervals, where water is forced to the surface by low permeability of coulee bottom materials. Occurrence of more permeable materials, such as clinker, allow water to re-enter the ground below these springs.

A.2. There is no evidence to support the Reichmuth "faulting" theory. With over 700 test holes in the area, such faulting has not been detected, although there are well documented areas of structural variation. Even in these areas, observation wells completed in different strata show no evidence of hydraulic connection, since potentiometric levels differ considerably. Most conclusively, water quality in the springs and recent dating information supplied by the University of Arizona do not suggest origin in deep aquifers.

B.l. and 2. These comments are adequately addressed by the reports of Envirosphere, Botz and Leaf.

K. As pointed out in the Westmoreland comments on the EIS, range productivity of 0.38 AUM's/Acre is not supported by on-site range surveys, which indicate a grazing capacity of about 0.25 AUM's/Acre.

These so-called "medicine rocks" are not at all unusual in the region. Properly turned caprocks, they form when a resistant rock layer overlies a formation which is less resistant to erosion. Such formations are common throughout the region.

Chapter III

B.l. and 2. The reports prepared by Envirosphere, Botz and Leaf respond adequately to these comments.

The substance of all of the remaining comments which have any relevance has been addressed in the Westmoreland submittal of October 9, 1979 or in the Westmoreland comments on the EIS. We see no reason to be redundant, and suggest that Mr. Dobson be supplied with a copy of the October 9 submittal.

Response to Comments of Friends of the Earth - Bruce J. Terris and Tera Harvey

Friends of the Earth ("FOE") suggest in their comments to the draft EIS that the draft should be supplemented before a final EIS is prepared. FOE based this request on the fact that DSL has requested certain additional information from Westmoreland regarding its 5-year permit application. In response to the DSL request, Westmoreland has submitted certain additional information to DSL as part of its five-year mining application. We suggest that a copy of that submittal be supplied to Mr. Terris and Ms. Harvey.

No provision of Montana law requires a supplement, particularly when DSL has already decided to incorporate the additional data developed by WRI and the public in a final EIS. Under Montana law, even a final EIS is optional and may be utilized by a Montana agency to modify an environmental impact analysis first presented in a draft EIS.

There is no need for a supplement because the draft EIS covers all of the relevant impact issues as mandated by Montana law, and the additional data developed for DSL by Westmoreland shows that the five-year mining proposal will have substantially less, not more, environmental impact than that suggested by the draft EIS.

Montana's EIS regulations provide that a draft EIS shall include a discussion of certain specific factors mandated by state law. All of these factors appear in the draft EIS. Under the Montana regulations, once a draft EIS is prepared and distributed, a final EIS may be developed to include comments and the response of DSL. If in the discretion of DSL the nature and number of substantive comments justify the development of a final EIS, a final EIS can be issued and shall when issued, include a summary of major conclusions and supporting information based on the draft, the responses to substantive comments, a good faith evaluation of the comments received, and any new data, information or explanation derived or obtained subsequent to the draft. See Montana Regulations, §16-2-2(2)-P2040. FOE's request for a supplement simply does not fit into the Montana scheme. Because DSL has decided, on its own, to prepare a final EIS to incorporate the data developed since the draft EIS, there is no other authorized procedure for DSL to follow.

As FOE points out in its comments, under federal law a federal agency can, under certain circumstances, supplement a draft EIS prior to issuing a final EIS. In Lathan v. Brinegar, 506 P.2d 677 (9th Cir. 1974), on banc, the Court of Appeals suggested that a draft EIS need be rewritten only when the draft is found to be "grossly inadequate." Also the recent CEQ guidelines suggest a draft EIS should be reviewed where a draft EIS is "so inadequate as to preclude meaningful analysis." Sec §1502.9, 42 Fed. Reg. 55995.

The draft EIS is an excellent draft which covers all of the matters required by the Montana regulations. No one, including FOE, has alleged or even suggested that the draft EIS is "so inadequate as to preclude meaningful analysis." All that FOE has suggested is that additional data developed since the draft EIS will be of assistance to the public in determining, in their own minds, the environmental impact of the WRI mining proposal. Second, there is no basis for contending that the CEQ guidelines determine the course of action for a Montana Agency, see e.g., Montana Wilderness Association v. Board of Health and Environmental Sciences, 559 P.2d 1157 (1976). Since the Montana Regulations speak expressly to the procedure to be followed when subsequent to a draft EIS additional data is developed, conflicting CEQ procedures applicable to federal agencies cannot be invoked.

Response to Comments of Steven J. Perlmutter

p. I-8 The design of the drainage system and sediment ponds to control flow from a ten year, twenty-four hour event is in compliance with OSM's permanent regulatory program (30 CFR §816.46) and Montana's proposed regulations (Rule VII(7)(c)). The results of an event of greater severity would create an overflow condition in the ponds and the addition of sediment fractions to the east fork of the Sarpy Creek. Since the receiving streams would be carrying high sediment loads in response to such an event, such minor additions of sediment would be inconsequential from an impact standpoint.

p. III-8 The air quality effects on the PSD Class I status of the Northern Cheyenne Reservation have been considered to be negligible. The air modeling performed in connection with that redesignation proposal indicated that a surface mine could be operated beyond a five-mile buffer zone around the reservation without exceeding the applicable increment even if it were assumed that fugitive dust from the mining operation should be considered in the analysis. As a result of the decision by the Court of Appeals for the District of Columbia in Alabama Power Company v. Costle, 13 ERC 1225 (D.C. Cir. 1979), EPA has proposed amendments to the PSD rules which would, for the present, remove fugitive emissions from coal mines from the scope of PSD review (44 Fed. Reg. 51924). The Department of State Lands has not conducted an air modelling study of the area surrounding the Northern Cheyenne Reservation to attempt to determine what percentage of the allowable increment of TSP may be used by Westmoreland's twenty-year mining activity, and the Department believes that any such study could be based only on conjecture as to the future extent of the activities of Westmoreland and all other sources in the area over an extended future period.

Since Mr. Perlmutter has requested that a supplemental draft be circulated, we suggest that a copy of Westmoreland's response to Brace Hayden, with supporting material, be set to him.

Response to Comments of Northern Plains Resource Council

There is no basis for denying this five-year permit application either in whole or in part. The mining will remove only spring 276 which is located in the proposed mining area, and the elimination of this spring is not likely to affect Westmoreland's ability to meet the revegetation standards. The spring influences only 0.23 acres of vegetation, the loss of which would have an insignificant impact on grazing capacity. The existence of the shrub species in the area of the spring is dependent in large part on snow melt and topography which protect the vegetation from the wind and sun. Accordingly, reclamation techniques such as proper topographic design, maximization of northern faces, initial control of vegetation competition, shading, specialized topsoiling procedures, and careful planting of transplants and seedlings are likely to assure a diverse vegetative cover even in the immediate area of the spring. Spring 276 is not developed for livestock watering.

The disruption of a portion of the middle siltstone aquifer will not materially affect the springs on the neighboring lands. Studies conducted by consultants to Westmoreland Resources indicate that the diminished flow to the springs on the neighboring lands which may result from mining in the proposed mine area will not affect the use, enjoyment or fundamental character of the neighboring lands.

We will look forward to reviewing the final EIS. Please call if we can be of any assistance.

My best regards,

David W. Simpson

David W. Simpson
Environmental Administrator

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WESTMORELAND RESOURCES, INC.

POST OFFICE BOX 449, HARDIN, MONTANA 59034 (406) 342-5241

November 28, 1979

Mr. Craig Howard
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Craig:

During our meeting of November 14, 1979, we discussed several issues raised by commentors on the Westmoreland Draft EIS. Following are responses to several points which Westmoreland feels deserve attention:

Response to Comments of John E. Velehradsky, Chief, Planning Division, Department of the Army - Omaho District, Corps of Engineers.

The primary concern of the Corps of Engineers as expressed in the letter is the applicability of Section 404 of the Clean Water Act. Based in a review of 40 CFR 230, we have concluded that Section 404 of the Clean Water Act is inapplicable because the entire mine area is above the headwaters of Sarpy Creek. U.S.G.S. stream gauging records at Hysham, some 30 miles downstream of the mine area, show that flow is normally less than 5 cubic feet per second.

Response to Comments of Peggy Delaney, Montana Department of Community Affairs.

Page 3
Para 3 Westmoreland Resources, Inc., pays a 30 percent severance tax on coal sales, the stated purpose of which is to relieve impacts on community services and facilities.

Page 3
Para 4-6

The complaints of local ranchers derive from socio-economic studies conducted during 1975. Of the complaints listed, only two imply real impacts of mining. Although rumors of damage due to blasting have persisted, such damage has never been documented nor have any claims presented formally to Westmoreland. Impacts on water supplies and disruptions of agricultural operations were initial fears. Damage to a well has been claimed in one case.

Although the cause of the problem never was linked conclusively to mining, a new well was provided by Westmoreland. In the few cases where crop fields have been affected by road and powerline construction, financial compensation has been made.

Page 3
Last Para

Phase-out schedules cannot be provided because coal reserves are not limiting in the near future. It is possible that mining may continue for 50 years or more, assuming the presence of a market for the coal.

Thank you for the opportunity to respond to these comments. Please call me if we can be of assistance.

My best regards,

David W. Simpson
Environmental Administrator

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CHAPTER X

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